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ST GEORGE
S. W.

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[WITH SUPPLEMENT. { PRICE SIXPENCE. }
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The Cambrian Mining Company

(LIMITED).

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This Company is formed to Purchase for the sum of £70,000, in Shares, the Lease, Plant, Machinery, Buildings, and other Appliances and Appurtenances of the

ESGAIR-HIR SILVER-LEAD MINE.

AND THE

ESGAIR-FFRAITH COPPER MINE.

These famous mines are amongst the most extensive and richest ever discovered in Wales.

The mines are now in operation.

The properties extend on the course of the lodes upwards of three miles.

The mines are amply provided with modern and powerful pumping, drawing, crushing, and dressing machinery.

Barracks are erected on the mines for the accommodation of upwards of 300 miners.

The other buildings comprise well-fitted offices, smiths' and carpenters' shops, ore-houses, stables, engine-houses, &c., &c.

The royalty is only 1-16th, and no rent.

The chief management of the mines is under the direction of Mr. Thomas Granville, M.E., late Manager of North Basset, West Basset, East Carn Brea, and other most successful mines.

The great value of these mines and the desirability of an investment in the shares of the company is shown by the following reports of practical mining engineers:—

REPORT OF MR. JOSIAH H. HITCHINS.

This gentleman is one of the highest mining authorities, and the discoverer of the celebrated Devon Great Consols Mines, which have paid in dividends £1,192,096.

ESGAIR-FFRAITH.—The property comprising this mine is an unusually extensive one, being quite 1200 fms. on the course of the lode. The workings consist of an adit brought in from the side of the mountain, a level 10 fms. below, and an engine-shaft, which is 6 ft. deeper. The extent of the adit level east is 63 fms., in which the lode (to be seen throughout the drive) is 20 ft. wide, and as the north or hanging-wall of the lode has not been seen its entire width is unknown. It may be said without fear of contradiction that this great lode presents the most conclusive evidence of powerful mineral and chemical action, there being, indeed, convincing proof thereof in the fact that the back of the level (only 15 fathoms deep) has been stoped (worked) for ore in places—that is to say, at five different points, the produce being copper ore of the value of £20 a ton. Although this lode so far in Esqair-ffraith has proved no other than a copper-producing one, which it will be for the most part for a good many fathoms below the present workings (yielding such large quantities of rich ore as will ensure high percentage profits). I am of the opinion that in depth it will be a most abundantly productive lead lode; Esqair-ffraith being certain as a lead mine, in my opinion, to equal the adjoining celebrated Esqair-Hir, one of the greatest and richest of the lead mines in Wales, and on the very same lode as Esqair-ffraith, it is important to bear in mind.

The opinion just offered finds support in the fact that in the eastern portion of Esqair-Hir the lode in places was a copper-producing one. The extent of the 10 fm. level east is 17 fms., the lode being equally wide, and showing as highly promising a character as in the adit. The drive is being pushed forward with all possible force for getting far enough east to have the rich ore ground gone through in the adit, which no doubt will at this level, which is 10 fms. deeper, be found equally rich, if not richer, and more regularly continuous. The level has not to be driven many fathoms further east before being in the run of the rich ore ground referred to; that this lode will not only be abundantly productive at the 10 fm. level, but more so at deeper levels, I feel fully assured, judging a good deal by the gossan holding down in it, which is very strong, presenting altogether a highly approvable and indeed most splendid character. I have no hesitation in saying that there exists a great body of rich copper ore in this part of Esqair-ffraith, and at no much greater depth than the present workings, the superstructural portion thereof having indeed already been reached, it may be said without fear of being wrong.

With my 40 years' varied mining experience, I have no fear of being thought too pretentious in claiming to be competent to pronounce judgment on such a lode as the one in question. My knowledge of the constituent character of Cardiganshire productive lodes, and their mineralising conditions, as well as of the class of rocks they should be associated with, on which their ore products and accumulations in large bodies depend, will not allow me to form any other opinion of the Esqair-ffraith lode than that it is inherently one of very great productive power, having in store at no great depth, as before intimated, such resources as will ensure very large returns of ore, both copper and lead, and the realisation of large profits.

I rest my opinion on the strong ground of analogy, to which experienced and enlightened mining authorities will ever attach the utmost importance, having found it to be their most reliable guide in judging of lodes—that is to say, whether they will prove productive or not. The extent of the 10 level west is 13 fms., in which the lode is quite as wide as in the eastern drive, and of the same highly favourable character, showing, indeed, greater mineral strength near the shaft, where it makes some good ore, so much as to be equal to about 3 tons to the fathom, which must remain for a time, it being neither convenient nor safe to take away whilst the shaft is sinking, which to continue with all possible force and dispatch is of paramount importance, it being at present only 8 ft. deeper than the 10 fm. level below the adit. The quicker the shaft is sunk the sooner will be reached the great body of rich ore that I am so certain there is below, the evidently improving character of the lode, as to be seen at the deepest point sunk, allowing of no misgiving in looking forward to the solution of this great problem.

Whilst underground I had some stones of ore broken from the lode at the very bottom of the shaft, some of them being very rich, from 15 to 20 per cent., and presenting altogether a highly promising general character—indeed, unmistakable evidence of this lode being one of very great mineral power. It is very satisfactory that this mine has at command excellent machinery, consisting of a powerful water-wheel, 42 ft. diameter and 4 ft. breast; crusher wheel, 40 ft. diameter and 4 ft. breast; good wheel (quite powerful enough) for driving dressing machinery, consisting of four double patent jiggers,

&c., all in complete working condition; wheel for drawing, 18 feet diameter and 2 ft. 6 in. breast, with drum and all requisite attachments complete, and in perfect working order. Besides the water of this mine being enough to drive all the machinery that the various purposes referred to will necessitate, it is quite equal to working such pumping machinery as will command the fully effectual development of the lode to a depth of more than 100 fms., which is, indeed, of great importance, ensuring the cheapest and most profitable prosecution possible of the mine. It is also of importance that so much has been done in opening out this great lode, thereby several years' working being saved, and an outlay of some thousands of pounds.

With respect to the driving of the present bottom level east, to open out the rich ore ground 10 fms. below the adit, and the sinking of the engine-shaft for the deeper development of the lode, I have simply to observe that such operations are very desirable; in addition to which the driving of the bottom level west towards Copper shaft, and its deeper sinking, are very recommendable, as the general character of the stuff in the surface burrow cannot but be considered by any mining man of experienced judgment to indicate with much certainty (more particularly the splendid gossan) that there are very large bodies of rich ore to be laid open in this part of Esqair-ffraith, there being plenty of spare engine-power for deeper operations, pumping and drawing purposes. The important question whether the Esqair-ffraith lode is in the right rock finds the best answer in the fact that it is in precisely the same slate formation as Esqair-Hir and many mines that have figured amongst the greatest and richest mines of Wales. On sinking the present engine-shaft—say 30 fms. more, or only 20—it will, in my opinion, reach the great body of rich ore that I again say I firmly believe there is in Esqair-ffraith; such a body of ore, indeed, as will ensure very large profits, and establish a great value for the mine. The Devon Great Consols ore formation, that increased the value of the £1 shares to £600, was met with at a less depth than 20 fathoms. I now more confidently rely on my judgment than I did when introducing those mines, as justified by 30 years' additional experience, although I said from the first that their results would be so great as would surprise the mining world; the close upon £1,200,000 dividends that they have paid being a brilliant realisation of that prediction. I again most emphatically say that I firmly believe Esqair-ffraith will also result in an exceedingly rich mine.

May 14, 1877.

J. H. HITCHINS.

REPORTS OF MR. ABSALOM FRANCIS.

Who possesses a most intimate knowledge of Welsh Mines, and is the author of the "History of the Cardiganshire Mines."

ESGAIR-HIR MINE.—This property is situated about seven miles eastward from the Llanfihangel Railway Station. It contains for very nearly one mile in length one of the largest and most masterly, as well I may safely say, the richest lode ever worked in Cardiganshire, it having produced from the 20 fm. level under adit considerably more than a million sterling in value of silver-lead ore. The courses of ore throughout the vein make in solid ribs varying from 3 in. to 6 ft. wide, the lode being in places over 100 ft. in width. I have no hesitation in saying that when the lode has been properly cross-cut throughout the grant, even at the present depths, that as much ore will remain for taking away again as has been taken away. All that is wanted to make this the greatest, richest, and most durable of the mines in this county is to work the property systematically—that being the case failure is impossible, and success is a certainty. It will be necessary to describe the position of the mine, which stands on very high ground—I should say from 1000 to 1200 ft. above the sea-level—and on this high ground is the machinery.

The lodes passing through the grant go through ground that rises rapidly from the western boundary towards the different points of workings eastward, so that by starting an adit level at this point (the boundary west), where a cross-cut of about 20 fms. would cut the lode, the adit could be continued all the way to the extreme end of the workings on the course of the lode, and would gain a back of from 500 ft. to 600 ft. in driving a distance of about 400 fms., and this would unwater the deepest point in the old workings, and leave the adit level, calculating from the deepest point of working.

Pen-y-Bwlch shaft has reached a depth of 60 fms., and Shaft Goch has also been sunk to a depth of 30 fms., below adit, the latter being 180 fms. to the west of the former; and the late managers say—"It only now remains to cross-cut and drive on the lodes to prove their value, which, according to our opinion, a small sum will accomplish." I may say that there does not exist one single doubt on my mind that a mine of great importance, and immensely profitable, must be opened out between these two points, and this should be done whilst the adit is being driven towards it; and as this work progresses there can be but little doubt very valuable discoveries will be made

in different places, and where rich ore is found ventilating shafts should be put through to surface, both for this and for the economical working of the ground.

There is a moral certainty of opening out a mine that will last a century, and become the richest and most profitable ever developed in Cardiganshire. There are also excellent offices, smiths' and carpenters' shops, miners' barracks, and other necessary buildings erected at great cost.

In connection with the horizontal steam-engine, I may say that all the necessary pitwork is fixed and in working order to the bottom of Pen-y-Bwlch shaft and Shaft Goch. Tramroads laid throughout the mine, and, in fact, everything that is required to press on the working of the mine. There is also an excellent crushing mill, and a good dressing flooring supplied with jiggling hatches, &c.

ESGAIR-FFRAITH MINE.—This mine lies to the east of Esqair-Hir, and distant from the Llanfihangel Railway Station about 8 miles. The vein is of great size, varying from 30 to 60 ft. wide, and in this grant, and immediately to the west of it, has produced millions of pounds worth of silver-lead and copper ores. The mine is well supplied with powerful water-wheels, for the purposes of pumping, crushing, drawing, and dressing; for the latter purposes the machinery is most perfect and complete, consisting of patent jiggers, &c., of the most approved construction, and all of which could not have been erected for a less sum than £5000.

The ground from the westward, towards Esqair-ffraith, falls rapidly for nearly three-fourths of a mile, so that the machinery is fixed in a well sheltered spot, and is supplied with water at all seasons of the year.

Although immense quantities of ore have been returned from the mine, the deepest of the workings have only reached a point of 10 fms. under the adit level, the component parts of the lode being a very rich gossan, with carbonate of lime, and a very rich copper ore, peacock, and yellow or copper pyrites, and which have been sold for as much as £25 10s. per ton. That this great gossan rises, or covers an immense mass or body of lead ore I have no doubt whatever, but there is little doubt on my mind that before the copper gives way to lead ore tens of thousands of tons of the former will be raised, and that the copper will gradually subside and be taken place by the lead, as is the case in the deepest mines of Cornwall—they making copper near the surface, which gives way to tin ore in depth. As there is a splendid field of machinery on the mine already for its immediate development, with rich copper ground to start the sinking of the present engine-shaft on, and to lay open ground enough to bring the mine into a state of good returns and profits, I would, therefore, advise the carrying out of the following work:—

To sink the engine-shaft from the 10 to the 20 fm. level, leaving a clear back of 10 fms.—say 11 fms.—at £30 per fathom, including costs and materials of all kinds, or.....	£ 330
Drive the 10 fm. level west 50 fms., at £10	500
" 10 " east 50 " 8	400
" 20 " west 30 " 10	300
" 20 " east 30 " 8	240
Sink a winze under the 10 west to 20, 11 fms., at £12	132
east " 11 " 12	132
Sink shaft from 20 to 30, 11 fms., at £30	330
Total	£2264

I believe this work would lay open a sufficient quantity of ore to commence returns of £1000 per month, and which, I believe, would go on increasing from year to year. It is impossible to select a finer property for investment.

REPORT BY CAPT. JOHN HUGHES.

ESGAIR-HIR SILVER-LEAD MINE.

I was captain of this mine for two years, during which time we worked at a profit of upwards £1000 per month. The lode is one of the strongest and finest ever discovered. It runs east and west, and underlies north. The enormous size of the lode may be imagined when I state that in some places it opens out to a width of 30 yards. I have from this lode cut steel-grained silver-lead 4 feet wide solid.

I have seen most of the mines in Cardiganshire, but nothing equal to Esqair-Hir.

I have a very high opinion of the bog in front of the mine barracks, and I am aware that the ore dips towards that swampy spot. I would advise the sinking of Shaft Goch 10 fms., and then drive a level east and west; also make a communication between this shaft and the Blue shaft. If this is done it will open exceedingly rich courses of ore. From the adit level down to the 30 fm. level I have not the least doubt but that there are some thousands of tons of silver-lead standing in the sides. I feel sure that a new adit level from the western boundary to the Blue shaft would open the mine richer than ever, and would also make it a lasting success.

April 23, 1877.

JOHN HUGHES.

REPORT BY CAPT. HENRY BOUNDY

ESGAIR-FFRAITH COPPER MINE

I have known this mine for the last 20 years, and had the sole underground management for five years. I shall in this report confine myself to the eastern part, for two reasons—I believe it to be the most important part of the extensive set, and it is the part that is now being operated upon. The eastern shaft is sunk from surface a distance of 25 fms. At 15 fms. from surface an adit level is extended east 62 fms., in the driving of which we met with five immensely rich courses of copper ore. The richness of these courses of ore may be understood from the fact of our extracting it in masses of upwards of 1 ton at a time. The average value of this ore was £20 per ton.

From the adit the shaft is sunk a further distance of 10 fms., or 25 fms. from surface, and a level east was commenced, but not driven sufficiently far to cut into the courses of ore met with in the adit above. The present operations will achieve this object, and will, I do not hesitate to say, result in enormous profits. I consider you are acting wisely in sinking the shaft deeper, and then to drive east and west. There cannot be the least doubt that the deeper this lode is opened up the richer the copper will be found. I have never seen such a strong copper lode, or one so beautifully composed—in fact, the lode is so great that when explored to a greater depth it is impossible to place a limit to its value.

April 23, 1877.

HENRY BOUNDY.

The dates and names of the parties to the contracts entered into, as required by the Joint-Stock Companies Acts to be specified, are an Indenture of Assignment bearing date the 19th day of March, 1877, made between Griffiths Williams and Evan Jones Williams of the one part, and Thomas Hine Green of the other part; and a contract bearing date the 16th day of May, 1877, between the said Thomas Hine Green of the one part, and the said Cambrian Mining Company (Limited) of the other part, and an Indenture of Assignment bearing date the 18th day of May, 1877, between the said Thomas Hine Green of the one part, and the said company of the other part.

FORM OF APPLICATION.

To the Directors of the

CAMBRIAN MINING COMPANY (LIMITED).

GENTLEMEN,—Please allot me shares of the CAMBRIAN MINING COMPANY (Limited), at £2 per share, fully paid, for which I enclose cheque value £

Name in full

Address

Date

Occupation, if any

This form, when filled up, to be forwarded to Mr. G. H. KEENE, Managing Director, 48 and 49, Palmerston Buildings, London, E.C.

Lectures on Practical Mining in Germany.

CLAUSTHAL MINING SCHOOL NOTES—No. XXVIII.*

BY J. CLARK JEFFERSON, A.R.S.M., WH. SC.,
Certified Mining Engineer.(Formerly Student at the Royal Bergakademie, Clausthal).
[The Author reserves the right of reproduction.]

SECTION II.

PROSPECTING FOR MINERALS—BORING.

III.—THE BORING OPERATION.

REMOVAL OF HINDRANCES WHICH OCCUR OR ORIGINATE DURING THE BORING.

It may be that the hindrance proceeds from a continual falling in of loose or quick strata. In such a case it is advisable to throw well tempered clay mixed with tow into the bore hole, and to use the sludger repeatedly. When such a bed of quick strata is met with it is most advisable immediately after the strata have been bored through, or sooner if necessary, to throw a sufficient amount of well tempered clay to the bottom of the bore hole, and amount of the bore pestle—a cylindrical bar of iron, with a hemispherical end—to stamp the clay well down, or even to force it into the sides of the bore hole. This clay filling is continued somewhat both above and below the quick strata, and afterwards bored through afresh, so that for some time at least a temporary clay lining has been provided.

A much better method, and one which has been used extensively in Prussia, is to use concrete in the place of clay. In the boring trials at Rohr, where the bore hole had been carried some distance down past the quick strata, it was necessary first to plug the hole at a short distance below the quick strata. The hole was plugged by means of a bung, which consisted of two semi-cylindrical blocks of wood, the flat faces of which were inclined outwards and upwards, so that the wooden wedge which was inserted between them was driven in from above. The cylindrical surfaces were carefully turned to fit the diameter of the bore hole, and two grooves, one turned to the upper end and one near the lower end, were turned in it, the two being wrapped round the grooves. The lower ends of the halves were both weighted with one stone, to prevent their being overturned by the water in the bore hole. The principal rod (suspended from the surface) terminates in a fork, the two ends corresponding to prongs terminated in hooks, which could be passed through eyes attached to the upper surface of the two halves of the bung or plug, and from which by a slight lowering and rotation of the rod the fork could be detached. The wedge which fits between the two halves of the plug has its broad end uppermost, and is here attached to a fork. The shaft of the fork which occupies the centre of the bore hole (the principal rod supporting the plug being placed sideways) ends in a screw, by which it is attached to a set of rods, which are attached at their upper end to a sliding shears. The ends of the fork are attached only loosely to the wedge. The plug is lowered to about 6 ft. below the broken part of the bore hole, and the wedge is driven tight in between the two halves of the plug, by means of several blows with the sliding shears. The two forks are readily loosened and withdrawn by twisting the rods slightly round. The plug and wedge as they become wet swell, and fit tightly in the bore hole, and in order that any opening which may have been unavoidably left free may not allow the liquid cement to run through it, the bore hole is filled from 3 to 4 ft. above the plug with broken bricks.

The concrete used consisted of a mixture of one part of hydraulic lime, one part of ground ashes, and two parts of Portland cement. The mixture was lowered in a sludger, which could be readily opened at the bottom, and in this manner the bore hole was filled for a height of 38 ft. above the plug, which was fixed at a depth of 47 ft. from the surface. The concrete required two months for hardening, after which it was bored through, the plug removed, and the boring continued.

At Elmen the concrete consisted of a mixture of one part of hydraulic lime, two parts of ground ashes, and three parts of Portland cement, the lower part of the bore hole being filled with sand instead of being plugged, which was afterwards readily removed by means of a sand sludger.

The bore hole at Elmen was lined with concrete in a somewhat different manner, in order to keep the water back from a salt bed which had been bored through. After the boring had been carried a short distance down below the salt bed the bore hole was lined with concrete in the manner we have just described, and afterwards bored out again. The bore hole for a distance of about 18 ft. above the salt bed was then lined with concrete in a similar manner. A wooden isolating lining was then inserted between these two concrete linings, overlapping both for a short extent, so that there was a free space of about 1½ in. between the wooden lining and the sides of the bore hole. The wooden tube was provided with a copper muff at the foot, near which were five holes through the tube communicating with the empty space behind the wooden tubes. After the wooden lining had been properly fixed, concrete was again introduced into the bore hole, to such a height that it entered through the five holes at the bottom of the wooden tube, completely filling the empty space behind it. In eight days the hardening of the concrete was completed, and the boring was commenced afresh through the concrete, and the sand which had been thrown to the bottom of the bore hole was raised with a sand sludger. This method has been found to answer well, and was used in the late borings for salt at Elmen, Neusalzwerk, and Schönebeck.

Whatever the hindrance may be which occurs to the lowering of the lining, in no case should a very powerful twist or heavy blow, in the case of its being necessary to ram down the lining tubes, be given, as a great strain is then thrown on to the rivetting, and the difficulty is more likely to be increased than diminished.

When ramming is unavoidably necessary, M. Dégoussé makes use of a cast iron rammer, about 4 to 5 cwt. in weight, and allows it to fall at most not more than 6 ft. The topmost tube is protected by an iron ring on the outside; the rammer falls upon a wooden block, which fits like a stopper on the top end of the tube, part projecting about 18 or 20 in. deep in the tube, where it is of somewhat smaller diameter than the upper part, which rests on the iron ring and edge of the tube. The wooden block has one or two rings driven on it, to prevent it being split by the rammer. When the hindrance in the bore hole is not great it may suffice to lay a flat piece of wood across the top of the last tube, and strike it with an ordinary sledge hammer.

Should it be necessary to twist the tube round, this may be done by fixing a clamp or hand brace of proper shape on the top of the tube. In case of the absence of such a tool the following extremely simple method may be followed: take a short piece of strong rope, tie the two ends together, and then form a running noose, which is slipped over the tube. Through the loose end or loop which is left pass a sufficiently long and stiff pole, and place a lid of wood between the short end of the pole and the tube; the other end of the pole will then serve as the long arm of a lever.

Herr Tasche when engaged at the borings at Wetterau effected the lowering of the lining of the bore hole when passing through quicksand by twisting the lining tubes round in the bore hole. The construction of the clamp used by Herr Tasche is as follows:—Over the mouth of the bore shaft a couple of strong balks, sufficiently wide apart to allow the lining to pass between them, are laid, and these are connected by two short cross pieces fastened the same distance apart. On the upper surface of these two balks and cross pieces four small rollers of hard wood are inserted, the short iron axes of the rollers resting in castings let into the wood. Above and on these a disc of wood having a disc of cast-iron for the under side rests, a hole being left through the disc for the lining tubes. On the disc, and fixed to it by four strong vertical bolts, is a wooden clamp, which embraces the lining tube, the tube being clamped fast or loosened by tightening up or slackening four horizontal bolts. It will be seen that by this arrangement when the clamp is tightened up the lining is supported on the horizontal disc resting on the rollers; otherwise, only from a second tube clamp, fixed higher up on the tube. When it is necessary to twist or rotate the lining, the rotatory clamp is tightened up, and by the means of levers attached to special clamps the workmen can rotate the tube; the weight of the lining (as it becomes cased in the bore hole) is carried by the rollers so long as the rotatory clamp is tightened. After rotating the tubes a little the clamp is loosened, and when it has descended as far as it will freely and readily go the clamp is tightened again, and the rotation is continued. Sometimes, when the lining can be neither readily twisted nor lowered any further, it is raised, then turned slightly round, and again lowered. This proceeding of clamping, rotating, unclamping, lowering, clamping and rotating again is carried on as long as possible, when it becomes necessary to insert a second narrower lining. The lowering of the lining in a bore hole passing through quicksand, or other similar strata, is perhaps the most difficult and risky operation connected with the sinking of bore holes, so that we shall consider the operations connected therewith somewhat more in detail than they might at first sight appear to deserve.

The loosening and lifting of the tubes in case of wedging fast was effected by Herr Tasche in this manner. Three wooden clamps were screwed as tight as possible on the lining close to each other. Beneath and bearing against these were the ends of two strong oak beams, 18 in. square and 27 ft. long, which served as two double armed levers. About 18 in. from the ends next the tubes two strong cross beams were placed to serve as fulcrums. About 16 ft. below the rivetting piston was fixed in the lining, so that the lining was really suspended from the rod of the rivetting piston. The end of the rod from the rivetting piston is attached to the winding rope. Just above the top of the lining a second clamp is placed, beneath which the end of another double armed lever (about 40 ft. long) is placed, this lever being at right angles to the other two levers. For raising and lowering the ends of these three large levers, three legs with pulley blocks were provided. The ends of the levers were kept suitably weighted, whilst a light rammer was constantly raised, and allowed to fall on a block attached to the top of the lining tubes, at the same time the winding rope was tightened, and let go in a series of light jerks. By this means the lining was so far loosened that it was raised 5 ft. out of the bore hole during the first day. The use of such large levers, however, entails the disadvantage of requiring a great number of workmen.

In inserting lining tubes in loose sand, M. Dégoussé used the following arrangement with considerable success. A wooden tube clamp is fixed firmly round the upper or projecting end of the first set of lining. A second narrower set of tubes are then inserted, in order to pass through the quicksand. It will be understood that the boring is continued during the sinking of the second set of lining tubes—or, in other words, that the lining of the bore hole is effected at the same time as the boring is carried on through the quicksand. A second wooden tube clamp is firmly fixed to the uppermost of the smaller lining tubes, which are destined to line the bore hole where it passes through quicksand. Two long rods, or bolts, connect these two clamps, the square ends or heads of the bolts being on the under side of the lower clamp. The upper ends of the long bolts are screwed for about one-third the length of the bolts. Two nuts, which are screwed on the ends, can be tightened against the upper surface of the top clamp. These nuts are gradually tightened up, whilst the borer is at work at the bottom of the bore hole, so that the end of the lining itself is never much above the bottom of the hole.

Another accident, of rare occurrence however, may sometimes happen to the lining. Either in consequence of careless ramming, or the superposition of too great a weight at the surface, or by a heavy falling in at some wide place in the bore hole the lining may be bulged or flattened inwards. In such a case if the bore hole is near completion (i.e. if the lining has not to be forced down to a much greater depth) a solid cylindrical mandrel, the outside of which is often with advantage fluted, is either gently forced or by a series of light blows driven through the flattened part, which is thus forced out into its original cylindrical shape. The mandrel might in some cases be made ellipsoidal in shape, and if the flattening is very considerable, two or three mandrels of different sizes might be successively used. The straightening plug used by Messrs. Mather and Platt for such an occurrence consists of a stout piece of timber (about 7 ft. long) faced with wrought-iron strips, and tapering somewhat at both ends, above this is a heavy cast-iron block, the weight of which forces the plug past the part where the tubes have got displaced and thereby straightens them again. For small borings under 12 in. diameter, Messrs. Mather and Platt use screw-jacks for forcing the lining into a bore hole. The foundation beams of the framework of the winding and percussive engine are weighted and a couple of screw-jacks about 10 tons power each are suspended from them upside down. A pair of deep wooden clamps are fixed tightly to the uppermost tube and the screw-jacks acting upon these force the tubes into the ground. The boring being continued, the screw-jacks are occasionally worked so as to force the tube if possible even ahead of the boring tool. As the screw-jacks are worked out to their full length the wooden clamps are slackened and shifted up the tubes. The boring is carried on simultaneously within the tubes.

For fixing down the lining for large bore holes (18 to 24 in. in diameter) Messrs. Mather and Platt have made use of hydraulic power. The arrangement used by them in lining an 18 in. bore hole put down at the Horse Port at Gosport, for supplying the garrison with water, will serve us for an example of this method of lining. The bore hole is carried down from a bore shaft which is itself 90 ft. deep. The bore shaft is tubbed with cylinders 6 ft. in diameter and 5 ft. long, the flanges of the cylinders being formed on the inside. Two long wrought-iron columns, 6 in. in diameter, are firmly secured in position near two opposite sides of the boring shaft by castings bolted on to the flanges of the cylinders, which form the tubing of the shaft, in such a manner that the two columns are perfectly rigid and parallel to each other. A casting carrying on its underside two 5-in. hydraulic rams of 4 ft. in length is formed so as to slide freely between the columns, which serve as guides. The hole in the centre of this casting is made large enough so as to allow of the lining tubes—which are 1 in. thick—being passed freely through it. The casting itself can be fixed securely at almost any height by means of cotters passed through slots in the columns. A second casting, similar to the first, is placed upon the top of the tubes to be forced down, a loose wrought iron ring being first put upon the shoulder at the top of the tube. This casting or cross head rests unsecured on the top of the tube, and is free to move up or down with it. The ends of the cross head are somewhat curved, so that as they glide along the two upright columns the latter partly act as guides to this lower casting or cross head. The hydraulic cylinders, with their rams pushed home, are lowered upon this cross head, and the top casting to which they are attached is then fixed firmly to the columns by cotters through the slots. A small pipe, having a long telescope joint, is inserted in the bottom of each cylinder, and by a common main piping connects the hydraulic cylinders with the hydraulic pumps at the surface. With this arrangement a total force of about 120 tons can be brought to bear upon the two rams. After the rams have made their full stroke the pressure is let off, and the hydraulic cylinders with the top casting slide down, the rams resting on the lower cross head until the rams are again pushed home. The top casting is then fixed in its new position by cotters as before, and the hydraulic pumps are again worked until a length of two tubes (18 ft.) has been forced down; the hydraulic arrangement is then drawn up again to the top, and a second length (18 ft.) of lining added, when the operation of forcing down is resumed. The tubes are steadied by cast-iron or timber guides, placed lower down in the bore shaft, which are fixed to the flanges of the cylindrical tubing of the shaft. In this case, also, the operation of boring is carried on simultaneously with that of lining the bore hole, except when fresh tubes are being added.

Before the completion of the lowering of the first set of lining the question must have been decided whether the bore hole shall be continued of the same or a smaller diameter. In the former case the

lining must be suspended from the top of the guiding bore tube, so that the shoe of the lining is from 5 to 6 ft. above the bottom of the bore hole, so as to allow room for the lift of the cutter. When the diameter, however, is so great that even suppose it be necessary to lower a third or even a fourth set of lining tubes, there is no fear of it ultimately being reduced too much to allow of the use of the boring apparatus which has been already employed for the upper part of the bore hole, then the shoe of the lining is allowed to rest at the bottom of the bore hole. The size or breadth of the cutter to be employed in continuing the bore hole of the reduced diameter is found in the following manner. Suppose we have a 15-in. bore hole (i.e. at the commencement), and the sheet-iron of which the first set of lining is made is ½-inch thick, and we have allowed ¼ inch play all round the lining between it and the sides of the bore hole, so that the outside diameter of the lining is ½ in. less than that of the bore hole, and remembering that where the lining is composed of conical tubes we have five thicknesses of iron, then the inside diameter of the lining is 15 in. — ½ in. — 5 × ¼ in. = 13½ in., and if we allow ½ in. play (reckoning both sides) between the inside of the lining and the sides of the borer or cutter, we have for the diameter of the continuation of the bore hole, and consequently the breadth of the cutter, 13½ in. — ½ in. = 13 in. When free-falling apparatus is used, which has a cap such as Kind's, care must be taken by the suitable insertion of an additional rod between the free-falling piece and the cutter to avoid having the cap at the level of the shoe of the lining.

Care should be taken at the recommencement of boring to have the centre of the continuation of the bore hole exactly in the same line with that of the upper portion, for which, if necessary, guides should be used. It may happen that the continuation of the bore hole is known to have to pass through an extremely firm and compact rock, sufficiently so, perhaps, to require no lining, so that it is decided to continue the bore hole of much smaller dimensions. In such a case the change is not made abruptly but gradually; the blade of the cutter with which the continuation is commenced is made in the shape of a trapezium, the length of the lower (cutting) edge being made equal to the diameter of the continuation of the bore hole, the breadth across the upper part of the blade being nearly equal to the inside diameter of the lining; the two inclined sides of the blades are, of course, sharpened to form cutting edges. When the top of the blade is on a level with the bottom of the lining the cutter is replaced by one of a size corresponding to the diameter of the continuation of the bore hole.

When, however, a loose conglomerate or quick strata are again met with below the first lining it may become necessary to have this lower part lined. This may be done either by continuing to lower the original lining (for which purpose the bore hole must be widened), or when this is undesirable—either on account of the expense of widening, or the strata through which the upper lining passes, such as mild clay or marley strata, may have swollen and fastened the upper lining so tight as to prevent its being pushed down—then a second narrower set of lining tubes may be inserted, which only cover the quick strata, or come to the bottom of the upper lining, or this second set may be constructed to reach to the surface. In this last case the insertion of the lining is made in exactly the same manner as by the insertion of the first set of lining.

Lining which covers only a particular part of the bore hole, or which does not reach to the surface, is called lost lining (Ger. verlorene Röhrentour). When the object of boring is simply to ascertain as quickly as possible the depths, &c., at which seams of coal lie at a particular place, and when, from geological and other observations, the nature and succession of the strata to be met with are known, and especially when the strata which it is necessary to line are few and of no great thickness, it is advisable to resort to the insertion of lost lining. Lost lining, however, has the disadvantage that it is very liable to be caught and raised from its place by the boring apparatus, when the quick strata may again be left uncovered with its attendant dangers; especially liable, however, is lost lining to be disturbed and fractured when an attempt is being made to recover a broken or tightly wedged borer.

WINDING ENGINE FOR RAISING COAL FROM GREAT DEPTHS.

At the North Staffordshire Institute of Mining and Mechanical Engineers meeting, on Wednesday (Mr. J. Macdonald in the chair), Mr. W. Wells Bladen, secretary, read a paper by Mr. Julien Deby, of Brussels, foreign correspondent of the Iron and Steel Institute, on a "Winding-Engine for Raising Coal from Great Depths," constructed by Carls Frères, Ghent, from which we take the following:—What is now considered the best continental mining engine for great depths—of from 2000 to 3000 ft. and upwards—is now at work at the Sacré Madame Colliery, at Dampremy, near Charleroi, where it raises the coal at the rate of 3000 ft. in 57 seconds with ease, economy, and safety. This engine, constructed by Carls Brothers, Ghent, the well-known locomotive builders, is furnished with Salzer's valves; it is horizontal, with conjugate cylinders and automatic variable expansion gear, the invention of M. Zueblin, the chief engineer of Winterthur. It is situated on a colliery shaft 1000 metres (about 3000 ft.) in depth. The valves of the engine are equilibrated by air pistons, and their fall is perfectly silent. The admission of the steam into the cylinders is regulated mechanically by a hydraulic governor, which regulates the economic consumption of the steam. The cylinders have an internal diameter of 1 metre, with 1.80 metre stroke, and are cast, as well as the valves, &c., in very hard metal. The cylinders are covered by sheets of cork, flax bark, and polished sheet-iron, banded on tight, so as to avoid unnecessary cooling. Each cylinder has two anti-motor valves, which give exit to the steam and condensed water when an excess of back pressure takes place on the sudden reversing of the engine.

The distribution of steam is communicated through a small special shaft worked by means of two conical friction gears, one of which is wedged on to the main shaft. This does away with jerks and the noise generally produced by rotation. The friction disc can be regulated at will by means of a spring. The engine bed is of the American type, and cast in one solid piece. The cranks are balanced so as to equilibrate the weight of unequal masses in motion. The drums have a diameter of 8.40 metres, and carry from 1200 to 1300 metres of aloes cables. These cables, whose section is decreasing, have been calculated from the formula of Deville, the professor of the School of Mines of Mons. The break is a steam break worked by hand, and so arranged that the two jaws or blocks do not act simultaneously, but successively, on the break pulley. This prevents violent heavy jars and jolts from being transmitted to the shafts and working parts of the engine. An annex of the engine consists in a special heater in which the feed water is raised to 85° centigrade (equal to 144° Fahr.) The whole engine and bed are firmly established without the use of any large stone blocks, nothing but brick having been employed in the foundations, united by Portland cement. The engineer's stand is remarkably convenient, being on one side of the engine, so as to protect him in case of the rupture of a cable, or of any portion of the engine. He has grouped around him the reversing levers, the break and moderating levers, the wheel which governs the hand-break, and below his feet a pedal which acts on the hydraulic regulators. The reversing lever, which serves also as an expansion lever, acts with very great ease, even when full pressure of steam is on. Expansion can be obtained at any point, and may be made uniform if desired. The revolutions are 40 per minute.—Mr. Deby was thanked for his paper, but the secretary was instructed to communicate with him to obtain further information—such as pressure of steam, diameter and weight of rope, weight of lead drawn.

HYDRAULIC MACHINERY.—At a meeting of the Society of Engineers, on Monday, in the Society's Hall, Victoria-street, Westminster, Mr. Thomas Cargill, C.E. (president) in the chair, a paper was read by Mr. RALPH H. TWEDDELL "On Direct-Acting Machinery." The author first described the cases in which gearing by shafting, wheels, and belts was used for driving machinery. He then alluded to the advantages of that mode of transmission, espe-

* Being Notes on a Course of Lectures on Mining, delivered by Herr Bergstrath, Dr. von Grotte, Director of the Royal Bergakademie, Clausthal, The Harz, North Germany.

cially in large workshops, where the machines were placed far apart. After considering the transmission of power by steam for driving small engines on each machine, he proceeded to describe his application of hydraulic pressure to the transmission of the power, and also to working the tools themselves. To illustrate this part of the subject he described the differential accumulator, by the special construction of which the effect of a blow is obtained, as well as a steady pressure, and referred to the success which has attended the adaptation of his hydraulic riveters to this combination. After giving some data as to the working of the portable riveter, one of which can close 5000 in. rivets in 1½ hours, he described the hydraulic plant at the Toulon dockyard, where the principal machine shop, 380 ft. by 170 ft., is fitted up entirely on this system. Confining his advocacy of hydraulic power to special applications he claimed that for certain stated purposes, as compared with gearing, it was cheaper, because it effected a saving in cost of buildings; safer, in that there was no shifting of belts; more economical, because pipes never got out of order, while shafting always required attention; more efficient, because the friction, &c., in shafting increased the wear and tear; and also because with shafting to work the smallest machine in a shop it was necessary to drive all the shafting, whereas with water it was not so. Comparing hydraulic with steam power he showed that owing to the limited pressure obtainable by the latter it could never compete with water at 1500 or 2000 lbs. per square inch even for fixed tools, and that for portable machines it was totally inapplicable.

THE SCOTCH MINING SHARE MARKET—WEEKLY REPORT AND LIST OF PRICES.

During the last week the market has been very quiet. In shares of iron and coal concerns, Monkland have advanced 1s. each, while Benhar (new) are reduced 5s., Bolckow, Vaughan, A, a similar amount, and Marbella 2s. Scottish Australian (new) unaltered. Cairnbarrow have changed hands at list price, and buyers are still on the market at a slight reduction. C. Cammell and Co. (Six per Cent. Debentures) are also asked for. A meeting will be held this afternoon, at Liverpool, of the Crown Preserved Company. The sales of coal by the Scottish Australian Company for the month of March are announced at 12,132 tons. Bolckow, Vaughan, B, are at 34½; Cardiff and Swansea, 27s. 6d.; Carnforth, 11½; Chatterley, 25½; Consett, 19½; Great Western, 55s. to 79s.; Newport Abergarn, 57s. 6d.; Oakham, 50s.; Sheepbridge, 5½; Staveley, A, 27 prem.; Claverston, 12½; West Cumberland, 7½; Workington, 15½. In shares of foreign copper concerns the tendency of prices has been upwards. Rio Tinto Five per Cent. are advanced 95s.; ditto Seven per Cent., and Tharsis, each 12s. 6d. Tharsis (new), 10s., and Huntington 1s. A dividend of 20s. per share is payable on Cape Copper shares on the 23rd inst. Fortuna, 5½ to 6. Huntington are now a much better market, about 27s., and likely to improve than before again. When the shares were at 5s. each lately some rather large lots changed hands—one in particular, of some 1200 shares, were unfortunately let go at the very lowest by a shareholder disgusted with the call—strange to say, "a canny Yorkshireman." New Quebrada, 60s. to 52s. 6d.; Rio Tinto Five per Cent., 57½ to 58½. Tharsis touched 23½, now easier. Yorke Peninsula (ordinary) still 4s. to 5s.; this month's report referred to below, is encouraging.

In shares of home mines, Glasgow Caraden (new) are 1s. higher, and the old shares 6d. The monthly report of the Red Rock advice very fair progress, the lode in the 10 east is still very strong. A part of the dressing machinery is on the mine, and will soon be fixed and ready for operation. Rookhope are better, owing to the increased sale. A dividend of 12s. 6d. to 14s. Bampfylde, 6s. to 8s. Clementina, 30 to 40. Combmartin, 8s. D'Esch, 15 to 20. Great Laxey, 20½ to 20½. Gumsdale (Clitters), 30s. Killfrith, 10s. to 15s. Llangan, 5½. Glyn, 30s. Parys Mountain, 7s. 6d. Penrith, 9s. to 10s. Prince of Wales, 3s. Red Rock, 45s. Rookhope, 20s. St. Harmon, 45s. to 50s. St. Patrick, 20s. South Denbigh, 8½. Tankerville, 17s. 6d. West Combmartin, 17s. 6d. West Maria, 2s. 6d. West Tankerville, 20s.; ditto (preference), 45s. Wheel Agra, 60s. to 70s. Windsor Clive, 5s. In shares of gold and silver mines, Richmond are 1s. 3d. lower. The total gold returns from both districts of Pasterana United are 380 ozs. from 665 tons of ore treated. St. John del Rey have advanced to 320, the dividend being 17½. 10s. per share against 20. Antioquia are at 10s. to 15s. Chicago, 15s. to 65s. Chontales, 7s. to 8s. Emma, 1s. 3d. Eschquer, 6s. to 15s. I. X. L., 12s. 6d. Last Chance, 5s. 6d. Pasterana United, 3s. 9d. South Aurora, 6s. to 10s. In shares of coal concerns, Uphall and Young's Paraffin are each 1s. 3d. higher. Oakbank (new) 6d. lower. Runcorn Soap and Alkali are at 55s. 6d. The annual report of Young's Paraffin Company is given below. In shares of miscellaneous companies, prices just the same. Avoiside Engine are at 55s. Hepkins, 11½, and Co., 8½. London and Glasgow Engineering, &c., 26½. Phospho Guano, 11½ to 11½. Shares of chemical companies are quoted as follows:—Langdale's, 75s.; Law's, 95s.; and Newcastle 42s. 6d.

CWM DYWYF MINING COMPANY (Limited).—A company has been formed under this title for the purpose of acquiring the property and assets of the Cwm Dyw for Copper and Silver-Lead Mines Company (Limited), in the county of Caernarvon. The mines have already had the benefit of a considerable amount of capital having been expended on them, and it is considered a capital return would attend their fuller development on a paid-up capital of 12,000. The proposed capital is 20,000, in shares of 17.

YORKE PENINSULA MINING COMPANY (Limited).—It has always been considered that something wonderful might be expected in this company's Kurila property, and it is, therefore, satisfactory to call attention to the important improvement in the lode in the 45 east of Hall's shaft, as announced in the monthly advices from the colonies dated April 18 last, confirmed by telegram of May 31—to about 1000 ft. fathoms. The reports as to the other lodes are fairly promising: 135 tons of ore have been sold for 1217½. 6s. 10d. Tenders are called for 100 tons of 20 per cent. ore, valued at 1000. On hand—dressed and undressed, (say) 100 tons of 15 per cent.; dredge ore at 5 per cent., (say) 200 tons.

YOUNG'S PARAFFIN LIGHT AND MINERAL OIL COMPANY (Limited). The directors' annual report, to be submitted to the thirteenth general meeting, on June 14, states—The balance at credit of profit and loss account is 87,717 8s., out of which it is proposed to declare a dividend at the rate of 17½ per cent. per annum, payable in equal proportions on June 22, and Dec 21, 1877, less income tax. The dividend would absorb 55,150 7s. 6d. and leave 32,567 8s. 6d. to be carried forward to the current year. The works and plant of the company have been kept in a most efficient state, and the sum of 18,887 8s. 5d. has been expended on their maintenance, and charged to reserve. The amount written off for capital depreciation during the year has been 2,257 1s. 9d. Two 5-ton ether freezing machines have been erected during the past year, one at Adidwell and the other at Bathgate, and are giving much satisfaction. The company's retorts at Bathgate have always been insufficient to keep the refinery there in full operation, and consequently large quantities of crude oil have had to be purchased. During the past year the price thereof having greatly advanced, your directors consider it highly expedient to erect at Adidwell, in the neighbourhood of the shale pits, 105 new vertical retorts, whereby in future good oil will be obtained at much lower cost than has recently been paid for a less productive quality. The capital expenditure during the year amounts to 38,122 18s. 6d. The capital expenditure during the current year is estimated at 14,500. The greater portion of this proposed outlay is occasioned by the erection of the additional retorts at Adidwell. The estates at Charlesfield, near West Calder, and of Seaboard and Blackburn House, near Bathgate, have been leased on trial from Mr. L. W. Raeburn and Mr. John Pender, M.P., respectively, now being held and otherwise proved. The lease of a portion of the estate of Bards, which would have expired in 1884, has been renewed with the proprietor, Mr. Aretas A. Douglas, for 21 years from Whitsunday, 1877.

Subjoined are this week's quotations, &c., of mining and metal shares quoted on the Scotch Stock Exchange.

Per share.	Paid up.	Rate per cent.	Description of shares.	Last price.
40	47	8 ½	Arncliffe Coal (Limited)	51 1s.
10	10	8 ½	Benhar Coal (Limited)	9
10	9	8 ½	Ditto	7 ½
100	45	10 ½	Bolckow, Vaughan, and Co. (Lim.)	48 ½
10	10	10	Calfrable Gas Coal (Limited)	7 ½
10	10	10	Chillingham Iron (Limited)	80s.
32	29	10	Ebbw Vale Steel, Iron, and Coal (Lim.)	9 ½
10	5	10	Fife Coal (Limited)	10s.
10	10	10	Glasgow Port Washington Iron & Coal (L)	40s.
10	10	10	Ditto	40s.
10	10	10	Lochore and Caplethorpe (Limited)	82s. 6d.
10	10	10	Marbella Iron Ore (Limited)	72s.
10	10	10	Ditto	51s.
100	100	10	Nant-y-Glo & Blaenau Ironworks pref. (L)	10 ½
1	1	15	Omoa and Cleveland Iron & Coal (L & Red)	10 ½
1	1	15	Scottish Australian Mining (Limited)	35s.
1	1	15	Ditto	35s.
100	100	8	Shotts Iron	97
4	4	4	Canadian Copper and Sulphur (Lim.)	15s.
10	7	20 ½	Cape Copper (Limited)	36
1	1	15	Glasgow Caradon Copper Mining (Lim.)	24s. 6d.
1	1	15	Ditto	67s.
10	9 ½	10	Huntington Copper and Sulphur (Lim.)	27s.
25s.	23s.	10	Kapunda Mining (Limited)	25s.
4	4	4	Panulicello Copper (Limited)	25s.
10	10	10	Rio Tinto (Limited)	75s.
10	10	10	Ditto, 7 per cent. Mortgage Bonds	13 ½
100	100	10	Do. 5 p. cent. Deb. (Sp. Con. Bds.)	57 ½
10	10	10	Russian Copper (Limited)	40s.
10	10	10	Tharsis Copper and Sulphur (Limited)	23 ½
1	1	15	Ditto	10 ½
1	1	15	Yorke Peninsula Mining (Limited)	72s. 6d.
1	1	15	Ditto, 15 per cent. Guaranteed Pref.	21s. 3d.

GOLD, SILVER.		
1	1	Australian Mines Investment (Limited) 8s. 9d.
10	10	Flagstaff Silver Mining (Limited) 43s. 6d.
5	5	Last Chance Silver Mining (Limited) 7s. 6d.
5	5	Richmond Mining (Limited) 6 13s. 9d.
OIL.		
10	7	Dalmatny Oil (Limited) 8 ½
1	1	Oakbank Oil (Limited) 62s. 6d.
1	5s.	Ditto 13s.
10	10	Uphall Mineral Oil (Limited) "A" 8 ½
10	10	Ditto "B" Deferred 10 ½
10	8 ½	Young's Paraffin Light & Mineral Oil (L) 15 ½
MISCELLANEOUS.		
50	25	London and Glasgow Engineering & Iron Shipbuilding (Limited) 26 ½
20	14 ½	Peruvian Nitrate (Limited) 10 ½
10	10	Scottish Wagon (Limited) 11 ½
10	4	Ditto New 90s.
Interim.		Per share.
Last day for this account, June 11; settling day, June 14.		

NOTE.—The above lists of mines and auxiliary associations are as full as can be ascertained, Scotch companies only being inserted, or those in which Scotch investors are interested. In the event of any being omitted, and parties desiring a quotation for them and such information as can be ascertained from time to time to be inserted in these lists, they will be glad to communicate the name of the company, with any other particulars as full as possible.

J. GRANT MACLEAN, Stock and Share Broker.

Post Office Buildings, Stirling, June 7.

WATSON BROTHERS' MINING CIRCULAR.

Ten years ago the weekly information which had previously been published for a great number of years in WATSON BROTHERS' Mining Circular was transferred to the columns of the *Mining Journal*, with the following announcement; which is now reproduced in consequence of the numerous letters and enquiries handed to them of late in reply to one which appeared in the *Journal* on the Clementina Mine.

The great extension of mining business, the difficulty so often complained of by country shareholders in getting accurate and disinterested information as to the state of Cornish and Foreign Mines, and of the financial and real position of mining companies generally, have induced Messrs. WATSON BROTHERS to make their Circular now published in the *Mining Journal* more extensively known, and to state—

That they issue daily to clients and others who apply for it a Price List (as supplied to most of the London and country papers), giving the closing prices of Mining Shares up to Four o'clock.

They also buy and sell shares for immediate cash or for the usual fortnightly settlement in all Mines dealt in on the Mining and Stock Exchanges, at the close market prices of the day, free of all charges for commission. They deal also, on the same terms, in the Public Funds, Railways, Telegraphs, and all other Securities dealt in upon the Stock Exchange.

Having agents in all the mining districts, they are constantly getting mines inspected for their own guidance, and will also obtain special reports of any particular mine for their clients, for the inspecting agent's fee of £2 2s.

In the year 1843, when mining was almost unknown to the general public, attention was first called to its advantages, when properly conducted, in the "Compendium of British Mining," commenced in 1837, and published in 1843, by Mr. WATSON, F.G.S., author of "Gleanings among Mines and Miners," "Records of Ancient Mining," "Cornish Notes" (first series, 1842), "Cornish Notes" (second series, 1863), "The Progress of Mining," with Statistics of the Mining Industry annually for 21 years, &c., &c. In the Compendium, published in 1843, Mr. WATSON was the first to recommend the system of a "division of small risks in several mines, ensuring the success in the aggregate," and Messrs. WATSON BROTHERS have always a selected list on hand. Perhaps at no former period in the annals of mining has there been more peculiar need of honest and experienced advice in regard to mines and sharedealing than there is at present; and from the lengthened experience of Messrs. WATSON BROTHERS they are emboldened to offer, thus publicly, their best services and advice to all connected with mines and mining.

Messrs. WATSON BROTHERS are daily asked their opinion of particular mines, as well as to recommend mines to invest or speculate in, and they give their advice and recommend mines to the best of their judgment and ability, founded on the best practical advice they can obtain from the mining districts, but they will not be held responsible, nor subject to blame, if results do not always equal the expectations they may have held out in a property so fluctuating as mining.

WATSON BROTHERS.

MINEOWNERS, STOCK AND SHARE DEALERS, &c.,
1, ST. MICHAEL'S ALLEY, CORNHILL, LONDON.

NORTH LAXEY.—The most favourable point here is the vugh or cavity in the lode in the shaft. These vughs make the riches of Great Laxey, but have never before been seen in North Laxey. This, therefore, may be the turning point into a course of ore.

GLENROY.—once part of Great Laxey.—The lode in the shaft below the 60 ft. level is now 8 ft. wide, and still widening, and can scarcely fail to make a course of ore. The 100 tons of blende sold was very rich.

ROOKHOPE.—The prospects for early profits and dividends are better now than when shares were at 5½ each, but the public never buy when shares are low and ought to be bought.

SATURDAY, JUNE 2.—Prices continue nominal, but Rookhope are in demand. Carn Brea quoted 34 to 36; Devon Great Consols, 5 to 5½; Dolcoath, 32 to 34; East Van, 4½ to 5; Glenroy Lead, 17s. 6d. to 20s.; Glyn, 13½ to 15½; Great Laxey, 20 to 21; Leadhills, 5½ to 6; North Laxey, 14s. to 16s.; Parys Mountain, 6s. to 8s.; Pateley Bridge, 2 to 2½; Penrith, 9s. to 11s.; Roman Gravel, 10½ to 11; Rookhope, 18s. to 20s.; South Condurow, 8 to 8½; Tankerville, 6½ to 7; Tincroft, 16 to 17; Van, 33½ to 35; Van Consols, 13½ to 14; West Chiverton, 14 to 16; West Tankerville, 17s. 6d. to 20s.; Wheel Greenvile, 11s. to 12; Wheel Greenvile, 22s. 6d. to 25s.

MONDAY, JUNE 4.—The market opened quiet, but Rookhope are firmer at 19s. to 21s., and North Laxey at 14s. to 16s. Parys Mountain are also better at 7s. to 9s. Other things remain about the same as on Saturday. Carn Brea, 34 to 36; Devon Great Consols, 5 to 5½; Dolcoath, 32 to 34; East Van, 4½ to 5; Glenroy Lead, 17s. 6d. to 20s.; Glyn, 13½ to 15½; Great Laxey, 20 to 21; Leadhills, 5½ to 6; North Laxey, 14s. to 16s.; Parys Mountain, 6s. to 8s.; Pateley Bridge, 2 to 2½; Penrith, 9s. to 11s.; Roman Gravel, 10½ to 11; Rookhope, 18s. to 20s.; South Condurow, 8 to 8½; Tankerville, 6½ to 7; Tincroft, 16 to 17; Van, 33½ to 35; Van Consols, 13½ to 14; West Chiverton, 14 to 16; West Tankerville, 17s. 6d. to 20s.; Wheel Greenvile, 11s. to 12; Wheel Greenvile, 22s. 6d. to 25s.

TUESDAY, JUNE 5.—Market more active. North Laxey, Tankerville, West Tankerville, Rookhope, Glenroy, and Parys Mountain in demand at an advance. Carn Brea is quoted 34 to 36; Devon Great Consols, 4½ to 5; Dolcoath, 32 to 34; East Van, 4½ to 5; Glenroy Lead, 17s. 6d. to 20s.; Glyn, 13½ to 15½; Great Laxey, 20 to 21; Leadhills, 5½ to 6; North Laxey, 14s. to 16s.; Parys Mountain, 6s. to 8s.; Pateley Bridge, 2 to 2½; Penrith, 9s. to 11s.; Roman Gravel, 10½ to 11; Rookhope, 18s. to 20s.; South Condurow, 8 to 8½; Tankerville, 6½ to 7; Tincroft, 16 to 17; Van, 33½ to 35; Van Consols, 13½ to 14; West Chiverton, 14 to 16; West Tankerville, 17s. 6d. to 20s.; Wheel Greenvile, 11s. to 12; Wheel Greenvile, 22s. 6d. to 25s.

WEDNESDAY, JUNE 6.—To day there has been more buyers of Tankerville, North Laxey, Parys Mountain, Leadhills, Glenroy, and a few other lead mines. Carn Brea is quoted 34 to 36; Devon Great Consols, 4½ to 5; Dolcoath, 32 to 34; East Van, 4½ to 5; Glenroy Lead, 17s. 6d. to 20s.; Glyn, 13½ to 15½; Great Laxey, 20 to 21; Leadhills, 5½ to 6; North Laxey, 14s. to 16s.; Parys Mountain, 6s. to 8s.; Pateley Bridge, 2 to 2½; Penrith, 9s. to 11s.; Roman Gravel, 10½ to 11; Rookhope, 18s. to 20s.; South Condurow, 8 to 8½; Tankerville, 6½ to 7; Tincroft, 16 to 17; Van, 33½ to 35; Van Consols, 13½ to 14; West Chiverton, 14 to 16; West Tankerville, 17s. 6d. to 20s.; Wheel Greenvile, 11s. to 12; Wheel Greenvile, 22s. 6d. to 25s.

THURSDAY, JUNE 7.—No particular feature in the market to day. North Laxey, Parys Mountain, and Rookhope (lead) firm at quotation. Carn Brea is quoted 34 to 36; Devon Great Consols, 4½ to 5; Dolcoath, 32 to 34; East Van, 4½ to 5; Glenroy Lead, 17s. 6d. to 20s.; Glyn, 13½ to 15½; Great Laxey, 20 to 21; Leadhills, 5½ to 6; North Laxey, 14s. to 16s.; Parys Mountain, 6s. to 8s.; Pateley Bridge, 2 to 2½; Penrith, 9s. to 11s.; Roman Gravel, 10½ to 11; Rookhope, 18s. to 20s.; South Condurow, 8 to 8½; Tankerville, 6½ to 7; Tincroft, 16 to 17; Van, 33½ to 35; Van Consols, 13½ to 14; West Chiverton, 14 to 16; West Tankerville, 17s. 6d. to 20s.; Wheel Greenvile, 11s. to 12; Wheel Greenvile, 22s. 6d. to 25s.

FRIDAY, JUNE 8.—Market very active for North Laxey, advanced to 18s., 20s.; Rookhope (lead), at 20s. to 22s. 6d.; Glenroy, Parys Mountain, Tankerville, Leadhills, and a few others. Carn Brea is quoted 34 to 36; Devon Great Consols, 4½ to 5; Dolcoath, 32 to 34; East Van, 4½ to 5; Glenroy Lead, 17s. 6d. to 20s.; Glyn, 13½ to 15½; Great Laxey, 20 to 21; Leadhills, 5½ to 6; North Laxey, 14s. to 16s.; Parys Mountain, 6s. to 8s.; Pateley Bridge, 2 to 2½; Penrith, 9s. to 11s.; Roman Gravel, 10½ to 11; Rookhope, 18s. to 20s.; South Condurow, 8 to 8½; Tankerville, 6½ to 7; Tincroft, 16 to 17; Van, 33½ to 35; Van Consols, 13½ to 14; West Chiverton, 14 to 16; West Tankerville, 17s. 6d. to 20s.; Wheel Greenvile, 11s. to 12; Wheel Greenvile, 22s. 6d. to 25s.

HANDBOOK OF NATURAL PHILOSOPHY.—The revised edition of the portion of Dr. Lardner's Handbook treating of Mechanics, considerably enlarged by Mr. Benjamin Lowry, first science master at the International College, Spring Grove, has just been issued by Messrs. Crosby Lockwood and Co., of Stationers' Hall Court. The perspicuity of the original has been as far as possible retained, and the chapters on machines, clockwork, &c., which had become obsolete, have been replaced by others of more modern character. The explanations throughout are studiously popular, and care has been taken to show the application of the various branches of physics to the industrial arts, and to the practical business of life. In the first book the properties of matter are treated of; next force and motion; then the theory of machinery; and, lastly, the application of mechanical principles in the industrial arts. The five volumes of which the series is to consist—Mechanics, Hydrostatics, Pneumatics, Heat, Optics and Electricity, Magnetism and Acoustics—

will convey ample information upon natural philosophy to meet the requirements of aspirants to a pass degree, whilst the comparative absence of technicalities will render the work equally acceptable to the general reader.

Meetings of Public Companies.

WHEEL KITY MINING COMPANY.

A general meeting of adventurers was held at the offices of the company, Austinfrans, on Tuesday.

Mr. CHESTER CHESTON in the chair.

Mr. JAMES HICKY (the secretary) having read the notice convening the meeting, the accounts, after charging four months' costs to end of December, showed a balance in favour of the mine of 437 5s. 4d. The report was read, as follows:—

June 4.—In the new shaft sinking under the 154 ft. level the lode when taken down yielded rich stones of tin; we shall not see the lode during the sinking, as it is being carried down a little distance from the level. The lode in the 154, driving east of shaft, is producing good tin. The lode in the 154, driving west of shaft, is presenting a better appearance for the production of tin than for some time past. The lode in the 142, driving west of shaft, is worth for tin 8½ per fathom. The lode in the 130, driving east of shaft, is worth for tin 8½ per fathom. The lode in the 130, driving west of shaft, is worth for tin 10½ per fathom. The lode in the 118, driving west of shaft, is worth for tin 9½ per fathom. The lode in the 94 ft. level, driving west of shaft, is worth for tin 7½ per fathom. The lode in the 65 fathom level, driving west of shaft, is worth for tin 7½ per fathom. The lode in the 100, driving west of engine-shaft, the lode is worth for tin 12½ per fathom. In the 90, east of engine-shaft, the lode is much the same as when last reported, worth for tin 6½ per fathom. We continue to raise our usual quantity of tin, and we shall continue to do so for a considerable time, which is about meeting cost, so that should an advance in price take place in tin we should at once make profit in proportion to the advance; the price at present is ruinously low.—W. TEAGUE, S. DAVEY, R. HARRIS.

The CHAIRMAN said he could not add much to what they had already heard read. The mine continued to be quite as productive as heretofore, but the low price of tin prevented them making profits; he hoped this might soon take an upward turn, and thereby enable them to show a more favourable balance-sheet. He then proposed, and Mr. W. CLARKE seconded, the following resolution:—"That the accounts with the agents' report now read be received and passed, and a copy forwarded to each adventurer."

A vote of thanks to the Chairman terminated the proceedings.

LEVANT MINE.—At the meeting the accounts showed a debit balance of 9067 0s. 7d. Capt. Henry Trezise and James Thomas say—"We have 45000 working worth on an average 8½ per fathom. We have 44 pitches working by 60 men and 17 boys, on tributes varying from 6s. 8d. to 18s. in 12, and 74 men and 11 boys on tribute; total, 143 men and 24 boys. We have raised during the last four months 57 tons of tin and 10000 lb. of copper. The average price is 4½ pence, which is about 1½ pence less than the previous four months. We calculate during the next four months to raise tin and copper enough to meet the working cost of the mine."

[For remainder of Meetings see to-day's Supplement.]

ECHOES FROM THE MINING MARKET.

Dulness is still the prevailing feature of the mining market. The metals are very quiet, and in copper holders do not care to sell at existing quotations. The tone of the lead market is decidedly healthy. There is no appreciable change in tin, and the Banca sale last week of 23,400 slabs has exercised no influence on prices. The stocks of the metal have increased, owing to heavy consignments from Australia. At present, therefore, there is little to cause a rally in tin quotations.

The mines in principal demand beyond the leading dividend properties have been North Laxey, Rookhope, Glenroy, Parys Mountain, and West Tankerville; all these shares are firmer, and exhibit decided symptoms of buoyancy. We hear of improvements at North Laxey, in the ends and in the shaft. The latter improvement is important. A "vugh," or cavity, has been met with, supposed to be the forerunner of a course of ore. Similar "vughs" in Great Laxey have invariably resulted in rich deposits of mineral, and the most interesting feature in the present discovery is that this is the first "vugh" that has been met with in North Laxey. From 10s. to 12s., with a dull market, these shares in about a fortnight have risen to 16s., 18s., a strong illustration—if illustration is needed—of the rapid response of the market, even in these dull times, to any likely improvement in young lead mines. With better business investors, at present temptingly low prices, could not fail to realise very handsome profits, for many mines are now at their lowest, and will rise, cent. per cent., and more, whenever the rebound comes. We cannot press this fact too much upon the attention of investors. There never was a more favourable opportunity than the present of purchasing shares in good mines at prices far below real value.

The Grenville accounts issued in anticipation of the meeting, to be held on the 14th inst., show (after estimating cost to July 14, and ore to be sold up to the end of August next, and debiting 1900 on account of new works) an estimated balance of 13557, against the mine, equal to a call of about 5s. per share. The cash statement shows a balance in hand of 11164; loss on 16 weeks' working, 1537. The items are as follows:—Dr. side, costs, 2512½; comprising labour, 1648; credit, 1648; 1894; and discount on calls, 1611. On the credit side, ore sold have realised 2005. The calls received have amounted to 2384, making, after meeting the deficiency on the working, the present credit balance.

The colliery share market has been extremely quiet, and the same has been the case with that for foreign shares, as beyond a further decline in Eschquer and Flagstaff and a rise in New Zealand Kapanga and Richmond there is little to notice.

P.S.—Since writing, North Laxey have further advanced to 18s., 20s., and the tone of the market is better.

JAMES H. CROFTS.

THE WEEK.

SATURDAY, JUNE 2.—There being no more stock to buy in against defaulting members, the markets were very dull, and the greater part of yesterday's rise was lost. North British fell 1½, to 92½; Great Eastern declined 1½, to 47. There was a fall of 1½ in Russian of 1873, to 76½; ex div. Egyptian Preference closed at 54½, and the United at 55½. Direct Cable, 12½ to 12½; Eastern, 7½ to 7½; Globe, 4½ to 5½; Silvers, 2½ to 2½; Construction, 27½ to 27½; Panama, 3½ to 3½; Newfoundland Land rose to ½, and Hudson Bay to 12. West Chiverton had an advance of 1, to 14½; Kapanga rose 5, to 1½; 2. Chicago was a flat market, and declined to 1½. Richmonds were offered at 5½.

MONDAY.—The directors of St. John del Rey propose paying a dividend of 17½ per cent. for the half year. The stock is quoted 305 to 315. Pennymer shares continue very flat, and offers at 5s. or 6s. each pass unheeded. Exchquer

be too highly appreciated. These gentlemen made a flying visit on Monday last to the Advance Mine, and were favourably impressed as to the great extent of the ledge, and the good quality and quantity of ore in course of extraction. The teams continue to haul good ore from the Exchequer and I. & L. Mines. These mines never looked more promising. — *Alpine Chronicle* (May 12).

Messrs. FRENCH and SMITH (June 7)—COPPER: This market was very inanimate, the chief feature being light clusters, and the absence of public sales of Australia. We quote Chili bars 69*l*. 7*l*. 6*l*. nominal; Burra 75*l*. 10*l*., tough 75*l*., manufactured 51*l*., ore and regulus 13*l*. 6*l*. and 14*l*. per unit. The imports and exports for four months, January to April, were, by the returns of the Board of Trade:

	IMPORTS.	1877.	1876.	1875.
Ore	Tons	25,405	21,385	13,950
Regulus	13,492	13,749	13,749	
Copper	14,025	11,418	16,159	
EXPORTS.				
Foreign raw	5,680	5,222	4,457	
English raw	3,908	3,606	3,262	

metal and brass producing yellow 9,291 7,592 7,044

—Tin: Holders of foreign, discouraged by the continued large shipments from Australia, have met the market more freely, so that in spite of a good demand values show a fall of about 1/2 per ton as compared with a month ago. From the Straits the shipments were again light, but from Australia the quantity from all ports is estimated at 1100 tons, much of this having been put on board in March and April. The quantity that will get away during the present month will probably be very small, the dull shipping season having now commenced. The deliveries from London were the largest during the present year—1134 tons, exclusive of 573 tons transhipped to America: this was caused by an improved demand from the Continent. From Holland 194 tons Banca and 1190 tons Billiton were taken from warehouse. The Dutch Trading Company's third sale in 1877 took place on the 30th inst., when 22,440 lbs Banca sold at 42 1/2 lb. to 42 3/4 lb., average 42 3/4 lb., equal to 72 1/2 per ton, and 10,000 lbs. English sold at 18 1/2 lb. in imported demand. The following are our usual statistics—

	1877.	1877.	1877.	1875.
	May 1.	June 1.	June 1.	June 1.
Foreign in London	Tons 9,150.	9,601.	7,470.	5,560.

Banca in Holland	928	1,435	480	983
Billiton in Holland	1,138	1,145	902	705
Alloft for Europe, Straits, advised by mail and wire	300	300	560	670
Aloft, Australia ditto	1,900	2,200	1,500	1,100
Aloft, Billiton	1,000	750	950	600
Banca in Trading Company's hands	830	220	2,810	2,340
Banca aloft, by sailing vessels	73	560	375	718
Total	15,374	16,111	14,457	12,939

Messrs. FRY, JAMES, and Co.—There has been uniform heaviness prevailing during the past fortnight.—COPPER has remained steady, at quotations, excepting Chill bars, which are quoted somewhat higher, but the amount of business going on continues to be very limited in all descriptions.—IRON is uninter-

repeatedly dull in all branches.—**TIN** has fluctuated slightly, but, on the whole, has been in a steady decline, and is now at a low level. It is not expected to be received slightly in quotations.—**SPELTER** continues dull of sale, without any material change in rates.—**TIN PLATES** steady, but slow of sale.

MESSE. VIVIAN, YOUNGER, and BOND (June 8)—COPPER: In Chili bars the quotations have not exceeded 20s. per ton, from 68s. 5s. to 69s. 5s., with moderate sales. In the market for 1895, the quotations are 20s. per ton, with sales of 3,000 tons fine. The latest Valparaiso advices quote a rather lower cost price, owing to a lower exchange. No public auctions of Australian have taken place since April 17, and so far no further announcement has been made, meanwhile stocks

about 15,000 tons Mexican ores at 13s. 7½d. down to 13s. 6d. per unit. A large sale of Newfoundland ores is reported on private terms for monthly deliveries, extending up to the end of the year. The market closes dull, with sellers of bars at 69s., spot at 68s. 10s. and 68s. 10s. for 12 months. The price of iron ore has fallen 10s. to 42½d. average, equal to about 72s. 6d. laid down here. During the greater part of last month the prices of foreign showed little variation, and considerable sales of Australian were made at from 68s. 15s. to 70s., and of Straits, though to a moderate extent only, at 10s. to 20s. higher. These latter, however, became affected by the same fall in price as the others, and the tendency of the market to discourage those who have looked for some falling off in production at the present range of prices. The deliveries were 1134 tons from the London stock (exclusive

Messrs. **PIXLEY and ABELL**.—**GOLD**.—The demand for export to Germany and Paris during the past week has been sufficiently active to absorb all the arrivals, with the exception of 151,000*l.* sovereigns, which have been sent into the bank. We have received about 400,000*l.* from New York, 61,000*l.* from Bombay, 47,000*l.* from New Zealand, 12,800*l.* from Melbourne, 25,000*l.* from West Indies; total, 585,800*l.*; 50,000*l.* sovereigns have been withdrawn for Lisbon.—**SILVER**.—A demand has sprung up during the past few days for India and China, and a considerable business has been done at 53*½*d. per oz.; at this rate the market may be considered firm. The arrivals have been—110,000*l.* from Germany, 23,580*l.* from River Plate, 20,000*l.* from New York, 32,740*l.* from the Pacific; total, 186,300*l.* The *P. and O.* steamer takes 140,450*l.* to Bombay to-day.

IMMENSE BLAST OF GRANITE.—Following close on the successful quarrying operations of the South Cornwall Granite Company, mentioned a fortnight since, comes information of a heavy charge having been exploded in one of the granite quarries of the Treffry estate, resulting in the throwing out of an immense quantity of solid rock, estimated at from 700 to 800 tons weight, the whole

GREAT WHEEL YORK.—At the sale of materials there was a large attendance, and considering the state of mining affairs, the prices realised were very fair. A large quantity of tools and materials of various descriptions remain to be disposed of, the contents of the large smiths' and engineers' shops being untouched. It is understood that other sales will be announced and continued till the whole of the plant is cleared off.

		LEAD ORES.		
Date.	Mines.	Tons.	Price per ton.	Purchasers.
May 23	Nantjago	15	\$13 5	Walker, Farker, and Co
	Powell Consols	20	13 6	Adams, Eytton,
28	Fronzoch	50	12 15 0	Panther Lead Co.
	ditto	50	13 1 0	ditto
	Goshin	35	17 14 6	Sheldon, Bush, and Co.
June 1	Minera	88	13 8 6	Walker, Farker, and Co
	ditto	60	13 5 6	ditto

— ditto	28½	13	5	6	ditto
— ditto	26½	13	5	0	Adams, Clayton,
— ditto	10½	13	5	0	Walker, Parker, and Co.
— ditto	10½	13	5	0	Nevill, Druce, and Co.
— ditto	23	13	5	0	Walker, Parker, and Co.
— ditto	60	13	6	0	Walker, Parker, and Co.
6—Great Dyfliff	100	12	11	6	ditto
—Leadhills	80	12	0	0	Sheldon, Bush, and Co.
7—Oldwell	20	25	19	1	Threlly, Estate.
—Old Treburgett	25	25	19	1	ditto

Date.		Mines	Tons.	Price per ton.	Purchasers.
June 1	—	Mina	40	8	Kerrick and Son.
—	—	ditto	15	4 8 0	Vivian and Sons.
—	—	ditto	33	4 8 6	Richardson and Co.
—	—	ditto	23	5 4 0	Vivian and Sons.
—	—	ditto	25	4 1 8	ditto

COPPER ORES.

Sampled May 23, and sold at Swansea, June 5.				
Mines.	Tons.	Produce.	Price.	
Cronebe...	54	25½	£ 1 3	
ditto	50	25½	1 3	
ditto	57	27½	1 6	
Cape Ore	67	35½	24 11	
ditto	67	35½	24 11	
ditto	68	35½	24 11	
ditto	65	23½	16 4	
Mines.	Tons.	Produce.	Price.	
Cape Ore	170	40½	£ 27 2	
Berchava	170	8	5 6	
ditto	100	6½	4 6	
Kaekmahon	139	7½	5 4	
Emily Ore	10	4½	2 10	
ditto	32	4½	2 15	
Cacirina	10	13½	8 12	

ditto.....	25	77½	18 11	0	Tigrony Fes. 12	38½	25 6	0
ditto.....	2	79¼	10 15	0	Copper Reg. 8	35	25 6	0
ditto.....	1	31½	20 18	0	ditto.....	8	35	25 6
TOTAL PRODUCE.								
Cronebane Ore.....	271	£ 331 9	6	Emily Ore.....	81	200	£ 137 0	0
Cape Ore.....	284	6533 12	6	Cacrintha Ore.....	10	556	56 12	0
Berehaven Ore.....	270	1237 15	0	Tigrony Freepit. 12	30	120	120 0	0
Kuockmahon Ore 138		721 1	0	Copper Regulus 14	325	14	325 14	0

COMPANIES BY WHOM THE ORES WERE PURCHASED.

P. Grenfell and Sons	19½	£ 1,379	7	8
Nevill, Druce, and Co.	28½	383	14	2
Vivian and Sons	35	175	10	0
Williams, Foster, and Co.	42½	4,453	5	6
Sweetland and Co.	42½	1,696	3	0
Landore Copper Company	66	1,630	6	0
Total	1080	£ 9,556	9	0

TOTALS AND AVERAGES.

	21 cwt.	Produce.	Price.	Per unit.	Standard.
Whole sale	... 1 89	... 13 5 16	... £ 8 17 6	... 13s. 4d.	... £ 59 10 0
<p>Copper ores for sale on June 19.—Moonta ore 77, 77, 76, 74, 95, 57, 49, 45. New Quebrada ore 87, 87, 87, 87—Berehove ore 98, 81, 71, 71—Algerian ore 95, 83, 71, 14—Algerian precipitate 2—Knockmahone ore 136, 120—Cape ore 53, 52, 52— Adjuclust ore 74, 74, 74—Adjuclust Fmation 7—Copper ore 89—Cape ore 89— ore 117—Balgumselsk ore 31—Coobheen ore 9—Australian ore 19, 3, 6—Copper matt 5—Copper regulus 5.—Total, 2599 tons.</p>					

	21 cwt.	Produce.	Price.	Per unit.	Standard.
Whole sale	... 1 89	... 13 5 16	... £ 8 17 6	... 13s. 4d.	... £ 59 10 0
Copper ores for sale on June 19.—Moonta ore 77, 77, 76, 74, 95, 57, 49, 45, New Quebrada ore 87, 87, 87, 87—Berehore ore 98, 81, 71, 71—Algerian ore 95, 83, 71, 14—Algerian precipitate 2—Knockmahone ore 136, 120—Cape ore 53, 52, 52— Adjuclrest ore 74, 74, 74—Adjuclrest Fmation 7—Copper ore 89— ore 117—Balgumselsk ore 31—Coobheen ore 9—Australian ore 19, 3, 6—Copper matt 5—Copper regulus 5.—Total, 2599 tons.					

[illegible]

the latter about 1½ ton per fathom; let for the month to nine men, at 8s. per fathom, including all costs, and to deliver their stuff in the adit level. The 30 west is a large vein, but the engine shaft is not yet sunk through it. The level in the end is several fathoms in width; the part carried, 1 ft. 6 in. consists of carbonate of lead, gossan, quartz, and lead ore, yielding of the latter about 1 ton per fathom; set to six men, for the month, at 7s. per fathom, including all costs. We are preparing to sink a winze under the 20, at a point about 50 fms. west of engine shaft, in the rich vein that went down under that level, which we shall call No. 1 winze; we have nearly completed cutting ground for stand, &c., and in next week I hope to be able to give you some favourable account about the value of the vein in this position. The south crosscut in the rich vein is now in a line with the Lumb vein, and we may cut into it at any moment; set to four men, to cut vein, at 10s. per fathom. Fielding's vein, in the 20, north west, is 3 ft. wide, and producing 1 ton of lead ore per fathom; set for the month, to four men, at 55s. per bing for dressed ore. In the sun vein going east from the bottom of the shaft, under Gillfield's level, we have just touched upon some old workings in the roof of the level. The vein underneath is strong and productive, yielding about 25 cwt. of lead ore per fathom. For men, for the month, at 88s. per fathom. All machinery working satisfactorily.

PENHALLE.—S. Bennetts, P. Vian, June 2: A portion of the lode has just been met with in the 70 east, on the north side of the slide, and found to contain some good stones of tin. The 60 east end is worth 10s. per fathom. The 55 east is worth 7s. per fathom, and the 55 west 7s. per fathom. The 60 north, on the east cross-course, is without much alteration, and without any lode as yet. The 60 west is worth 10s. per fathom, and the 45 east is worth 10s. per fathom. The various other points in this position are not going to be worked for some time longer.

PLYNIMMON.—John Garland, May 31: The new shaft below the 24 fm. level has been drained and cleaned up, and sinking resumed. The lode in the present bottom is of a very promising character, composed of killas, calcaspar, mundle, blende, and lead ore. This shaft will be pushed on as fast as possible to the required depth for a 38. Jones' winze sinking below the 24 fm. level is now down 6 fms. 3 ft.; the lode is large and masterly, and the footwall better defined than in the 24, and the 38 is a very good one, and is a very good one, and the same level is down 6 fms. 1 ft. in this winze, the lode has not as yet recovered the influence of the junction; present yield about 10 cwt. of lead ore per fathom. The stope over the 24, east of new winze, has slightly improved in the eastern end, and now produces 12 cwt. of lead ore per fathom. A stope, east of the last named over the same level, maintains its yield of 25 cwt. of lead ore per fathom. The stope in the bottom of the 12, east of cross-course, produces 15 cwt. of lead ore per fathom. Drawing and dressing are being kept going steadily, with a good supply of ore, and the engine shaft is now throughout in fair working order; the new line of rods works very well indeed.

PLYNIMMON.—J. Garland, June 6: With the exception of a slight improvement in the lode in Herbert's winze, sinking below the 21, there is no change calling for remark in any of the underground operations since my last. The sinking of the new shaft is being carried on by four men only; I hope to make this pace up to it full complement of men—nine—against the coming week. Friday next I shall be ready to report on the work given next week. Surface operations, including hauling, going on as usual.

PRINCE OF WALES.—J. Andrews, June 6: There is scarcely any change in the mine since last report. The stope in the bottom of the 55 west is still worth 15s. per fathom.

RELISIAN CONSOLS.—J. Curtis, June 6: Setting Report: The 24 to drive east of Duke's shaft, by four men, at 70s. per fathom. The men have cut into the lode 2½ ft., and find some good stones of tin in it, and cutting is now being done in the 24, and the 24 is a very good one, and is a very good one, and the same level is down 6 fms. 1 ft. in this winze, the lode has not as yet recovered the influence of the junction; present yield about 10 cwt. of lead ore per fathom. The stope over the 24, east of new winze, has slightly improved in the eastern end, and now produces 12 cwt. of lead ore per fathom. A stope, east of the last named over the same level, maintains its yield of 25 cwt. of lead ore per fathom. The stope in the bottom of the 12, east of cross-course, produces 15 cwt. of lead ore per fathom. Drawing and dressing are being kept going steadily, with a good supply of ore, and the engine shaft is now throughout in fair working order; the new line of rods works very well indeed.

ROMAN GRAVELS.—A. Waters, June 7: My annual report will shortly be in the hands of the shareholders, and I shall be able to give you a full and complete report on the work given next week. Surface operations, including hauling, going on as usual.

SAINT PATRICK.—William Francis, June 6: The cross-course in the 120 yard cross cut has opened to from 3 to 4 ft. wide, having just passed through a strong branch feeder, with a little ore about 1½ in. wide; it is chiefly composed of quartz, and is a very good one, and is a very good one, and the same level is down 6 fms. 1 ft. in this winze, the lode has not as yet recovered the influence of the junction; present yield about 10 cwt. of lead ore per fathom. The stope over the 24, east of new winze, has slightly improved in the eastern end, and now produces 12 cwt. of lead ore per fathom. A stope, east of the last named over the same level, maintains its yield of 25 cwt. of lead ore per fathom. The stope in the bottom of the 12, east of cross-course, produces 15 cwt. of lead ore per fathom. Drawing and dressing are being kept going steadily, with a good supply of ore, and the engine shaft is now throughout in fair working order; the new line of rods works very well indeed.

SOUTH TOLCARNE.—W. Rich, Wm. Williams, Hy. Abrahams, June 5: The 93 and west is worth 10s. per fathom. The 82 east is worth 8s. per fathom. The winze in the bottom of the 52 west is worth 7s. per fathom; we have begun to drive from the bottom of this winze to meet the 93 end. The 70 west is worth 15s. per fathom. The rise in the back of the 70 is worth 12s. per fathom. The 60 west is in easy ground, but the lode is not rich. The rise in the back of the 60 is worth 9s. per fathom. The lode in the bottom of this level is worth 18s. per fathom. The 50 end west is worth 12s. per fathom. The 50 west carries a little tin. The 40 east is worth 10s. per fathom. The 30 west is worth 10s. per fathom. The 20 west, on West, Basset lode, is unproductive. The Plantation shaft is made complete to the 20, and the men are now engaged cutting plat.

SOUTH WHEEL FRANCES.—A. T. James, June 6: The 205 west is worth 12s. per fathom. The same level east is worth 10s. per fathom. No. 1 stope in the back of this level is worth 15s. per fathom. No. 2 stope is worth 20s. per fathom. No. 3 stope is worth 15s. per fathom. The 185 west is worth 12s. per fathom. No. 1 stope, in the back of this level, is worth 15s. per fathom. No. 2 stope is worth 20s. per fathom. The winze being sunk below this level is worth 20s. per fathom. The 155 east is producing low quality tin stuff. The 140 east is worth 10s. per fathom. The 130 east is worth 10s. per fathom. The 120 east is worth 10s. per fathom. The 110 east is worth 10s. per fathom. The 100 east is worth 10s. per fathom. The 90 east is worth 10s. per fathom. The 80 east is worth 10s. per fathom. The 70 east is worth 10s. per fathom. The 60 east is worth 10s. per fathom. The 50 east is worth 10s. per fathom. The 40 east is worth 10s. per fathom. The 30 east is worth 10s. per fathom. The 20 east is worth 10s. per fathom. The 10 east is worth 10s. per fathom. The 0 east is worth 10s. per fathom. The 10 west is worth 10s. per fathom. The 20 west is worth 10s. per fathom. The 30 west is worth 10s. per fathom. The 40 west is worth 10s. per fathom. The 50 west is worth 10s. per fathom. The 60 west is worth 10s. per fathom. The 70 west is worth 10s. per fathom. The 80 west is worth 10s. per fathom. The 90 west is worth 10s. per fathom. The 100 west is worth 10s. per fathom. The 110 west is worth 10s. per fathom. The 120 west is worth 10s. per fathom. The 130 west is worth 10s. per fathom. The 140 west is worth 10s. per fathom. The 150 west is worth 10s. per fathom. The 160 west is worth 10s. per fathom. The 170 west is worth 10s. per fathom. The 180 west is worth 10s. per fathom. The 190 west is worth 10s. per fathom. The 200 west is worth 10s. per fathom. The 210 west is worth 10s. per fathom. The 220 west is worth 10s. per fathom. The 230 west is worth 10s. per fathom. The 240 west is worth 10s. per fathom. The 250 west is worth 10s. per fathom. The 260 west is worth 10s. per fathom. The 270 west is worth 10s. per fathom. The 280 west is worth 10s. per fathom. The 290 west is worth 10s. per fathom. The 300 west is worth 10s. per fathom. The 310 west is worth 10s. per fathom. The 320 west is worth 10s. per fathom. The 330 west is worth 10s. per fathom. The 340 west is worth 10s. per fathom. The 350 west is worth 10s. per fathom. The 360 west is worth 10s. per fathom. The 370 west is worth 10s. per fathom. The 380 west is worth 10s. per fathom. The 390 west is worth 10s. per fathom. The 400 west is worth 10s. per fathom. The 410 west is worth 10s. per fathom. The 420 west is worth 10s. per fathom. The 430 west is worth 10s. per fathom. The 440 west is worth 10s. per fathom. The 450 west is worth 10s. per fathom. The 460 west is worth 10s. per fathom. The 470 west is worth 10s. per fathom. The 480 west is worth 10s. per fathom. The 490 west is worth 10s. per fathom. The 500 west is worth 10s. per fathom. The 510 west is worth 10s. per fathom. The 520 west is worth 10s. per fathom. The 530 west is worth 10s. per fathom. The 540 west is worth 10s. per fathom. The 550 west is worth 10s. per fathom. The 560 west is worth 10s. per fathom. The 570 west is worth 10s. per fathom. The 580 west is worth 10s. per fathom. The 590 west is worth 10s. per fathom. The 600 west is worth 10s. per fathom. The 610 west is worth 10s. per fathom. The 620 west is worth 10s. per fathom. The 630 west is worth 10s. per fathom. The 640 west is worth 10s. per fathom. The 650 west is worth 10s. per fathom. The 660 west is worth 10s. per fathom. The 670 west is worth 10s. per fathom. The 680 west is worth 10s. per fathom. The 690 west is worth 10s. per fathom. The 700 west is worth 10s. per fathom. The 710 west is worth 10s. per fathom. The 720 west is worth 10s. per fathom. The 730 west is worth 10s. per fathom. The 740 west is worth 10s. per fathom. The 750 west is worth 10s. per fathom. The 760 west is worth 10s. per fathom. The 770 west is worth 10s. per fathom. The 780 west is worth 10s. per fathom. The 790 west is worth 10s. per fathom. The 800 west is worth 10s. per fathom. The 810 west is worth 10s. per fathom. The 820 west is worth 10s. per fathom. The 830 west is worth 10s. per fathom. The 840 west is worth 10s. per fathom. The 850 west is worth 10s. per fathom. The 860 west is worth 10s. per fathom. The 870 west is worth 10s. per fathom. The 880 west is worth 10s. per fathom. The 890 west is worth 10s. per fathom. The 900 west is worth 10s. per fathom. The 910 west is worth 10s. per fathom. The 920 west is worth 10s. per fathom. The 930 west is worth 10s. per fathom. The 940 west is worth

preparing to fit the 12-inch lift to enable us to keep that level drained more effectively. This will be done in a few days, as we have all the pitwork on the mine. To drive the 56, east of the engine shaft, by two men, at 4 $\frac{1}{2}$ per fathom; the lode is yielding 70 cwt. of silver. To drive the 34, west of the engine shaft, by two men, at 4 $\frac{1}{2}$ lbs. per fathom; the part carrying 6 ft. wide—is worth 10 $\frac{1}{2}$ per fathom, and very kindly lode. There is a great extent of ground to the west of this end, with very little down below the 24, whilst hundreds of fathoms have been taken away by the former workers above the 24, and we have reason to expect that the 34 will open out well, and that we shall soon resume the driving of the 44 west. We have also set 11 pitches to 44 men, at an average tribute of 10s. 9d. in 1 $\frac{1}{2}$. The tributaries are now making the gang in 38 $\frac{1}{2}$, per ton for black tin. The 44 being drained we have put on additional hand labour, at 10s. 6d. in 1 $\frac{1}{2}$, and from this time we expect to increase our returns.

— E. Hosking, W. Goldsworthy, June 7: There is no change to notice in any of the bargains since our report of Saturday last.

VAN CONSOLS.—James Roach, June 5: The 40, driving east of Gundry's, on the north part of the lode, is without alteration since last reported. The cross-cut south and east on the 34. In the 50, east and west of Murray's shaft, although strong and irregular branches appear, but the lode is not so good as it was of great importance. The winze under the 40 west, on the north part of the lode, gradually improving or lead. The stope in the roof of the 40 is without change since my last.

WEST COMB MARTIN.—J. Treweek: Since my last report there has been a further improvement in Thomas's lode, which shows a greater quantity of silver-lead. I have put three men to cut into the footwall part of the lode, as I was of the opinion that the lode would improve in that direction. I am glad to inform you that after working a few hours we cut a splendid lode, and the rest of the day plenty of mundle, with silver-lead ore, and streams of water issuing from the capel; this looks well for the future of the mine, and I confidently expect in a few days to have to inform you of a greater improvement. Livingston's lode is as we last reported, with the exception of more water issuing from the end.

WEST GOLDFISH.—William Tolt Pope, June 5: No change in the mine worthy of attention.

WEST PATELEY BRIDGE.—D. Williams, June 7: The 56 has been extended during the month 15 yards; the lode is very promising for a speedy improvement, being fully 5 ft. wide, composed chiefly of limestone, carrying a small branch of lead ore on the footwall. No. 2 shaft is enlarged, and timbered to a depth of 9 fms. below surface. I have set two men to drive east upon a branch of North Rake vein, being at present 6 in. wide, consisting of spar, gossan, and a good mixture of lead ore, being saving work for dressing. No. 1 shaft is down 9 fms.; in the 100, the lode is about 10 ft. wide, and the rock is hard, but I do not doubt, open out again. The new shaft upon discovery level is down about 5 fms.; lode 2 ft. wide, producing saving work for dressing of good quality.

WEST ROSKEAR.—H. Stephens, W. Bennetts, June 7: The rise above the 12, west of Stephens' shaft, is not yet communicated with the winze sunk below the adit, but we are daily expecting to accomplish it. The stope east of Lanyon's shaft continues in a good course of ore, and no falling off whatever since our last report. All progress satisfactory.

WEST TANKERVILLE.—Arthur Waterhouse, June 7: The boundary shaft is now divided and cased to the 88, and machine nicely working to bottom. The said 88 cross-cut to drive south-west towards lode by six men, at 13 $\frac{1}{2}$ per fathom. The 75 to drive south of winze south of shaft by six men, at 13 $\frac{1}{2}$ 10s. per fathom; lode 8 ft. wide, worth for lead and blende 25s. per fathom. Our principal ore ground is still south of the present, consequently an improvement may shortly be expected. The stope in back of the level north of the winze by six men, at 6 $\frac{1}{2}$ per fathom, worth for lead and blende 35s. per fathom. As soon as the end is out of the way we shall begin stoping, also the south end of said winze. The cross-cut east towards big lode in that direction by two men, at 7 $\frac{1}{2}$ per fathom. About 3 fms. driving will probably cut the said side lode. No. 1 stope, in 63 south, by six men, at 4s. per fathom, worth 1 ton per fathom. No. 2 stope by four men, at 4 $\frac{1}{2}$ per fathom, worth 25 cwt. per fathom. No. 3 stope by four men, at 5 $\frac{1}{2}$ per f., lode 7 ft wide, worth 1 ton per fathom. No. 4 stope by two men, at 4 $\frac{1}{2}$ per fathom, worth 1 ton per fathom. The stope in 60 south by two men, at 4 $\frac{1}{2}$ per fathom, worth 1 ton per fathom.

WEST TREASAYEAN.—George Stephens, June 5: Since my last report I have nothing special to report. The new lode east and west of the cross course still continues good for tin. The lode and elvan is large. We are driving the end east, 6 ft. wide, on the course of the lode. The underlie is about 18 in. in the fathom north. We are driving by the south wall; the north wall has not been seen, and, of course, will require a cross-cut, so as to enable us to fully ascertain the size of the vein, and extend it along its full length. As far as possible, and the lode still continues large and well defined. We are drawing a large pile of tinstuff to surface, and shall soon have to make new floors to contain it.

WEST WHEEL TOLGUS.—June 6: In Taylor's shaft the ground is without alteration to notice; the men are working in the bottom of the shaft without any interruption from the water. The lode in the 135 end east is small, scarcely anything more than just dividing the ground. The lode in the 135 end west is 7 ft. wide, yielding 7 tons of ore per fathom; the lode is somewhat harder than it has been, and is much better adapted for smelting. As soon as the lode is opened up, making good in length. The stopes are all yielding very well, and will continue to do so for the level over we are pretty sure, as the four winzes prove this. The lode in the 125 end west is small, not more than about 1 ft. wide, and appears to be going smaller, and it is poor; we feel certain of having ore in this end again soon. We have set the back of this level, east and west of the rise (recently communicated), on tribute to four men, at 3s. 6d. in 1 $\frac{1}{2}$; the lode being buxhy, and the ore good, and the ground is such that it will save the men the trouble of the lode. We have taken down any lode in the 95 west since our last report, neither shall we for some days, as the men are employed in stoping ground to the east of the end, in order to make dead levels to carry the water back towards Richards' shaft when holed. Richards' Shaft: The 95 east is being driven in killas for the sake of dispatch, and to leave the lode stand in the end of the shaft for keeping the shaft safe; the ground is good. The same may be said of the 95, west of shaft. The lode in the rise in the back of the 85, west of shaft, will yield 3 $\frac{1}{2}$ tons of ore per fathom. The lode in 75 west of shaft, is 10 ft. wide, and the lode is widening; it continues poor. The lode in the 45 end west is also small and poor.

WHEEL CREBOR.—J. Andrews, June 5: The lode in the 120, east of the winze, is 6 ft. wide, worth 15s. per fathom. The lode in the stope in back of the 120, west of winze, is 5 ft. wide, worth 10s. per fathom. The lode in the 108 east is 3 ft. wide, and yields a large quantity of mundle, with rich stones of copper ore intermixed, but not sufficient to value. The lode in the west stope in back of the 108 is 5 ft. wide, worth 15s. per fathom, and the lode in the 108 east is 3 ft. wide, worth 10s. per fathom. In the 72 east we are driving by the side of the lode. In the 45 east we are carrying 3 ft. of the north part of the lode, which yields about 3 tons of mundle per fathom, and is carrying a good leader of lead 1 in. wide in the north part, but is poor for copper. We are making fair progress in sinking the new shaft.

WHEEL GRENVILLE.—T. Hodge, June 6: At the western shaft the water is about 2 ft. above the back of the 160; the water is very busy. The north shaft is in regular course of sink, and the lode in the 160 is showing the large mass of quartz at the foot. I will furnish you with a detailed report for the general meeting.

— T. Hodge, June 7: We have still water in the 160, but I hope to get the level drained by to morrow. The lode in the 130, east of the north shaft, is improved a little. We broke some very nice stones of tin from the end to-day. No other change of importance.

WHEEL MARY HUTCHINGS.—H. Miners, June 6: We have let the contract for the erection of the new arsenical works, and according to specifications will be completed during the month of July. The lode in the 160 is showing the large mass of quartz at the foot. I will furnish you with a detailed report for the general meeting.

WHEEL NEWTON.—H. Bennett, June 7: The following is the setting report of this mine:—Cook's shaft to sink below the 40, by nine men, to 13 $\frac{1}{2}$ 10s. per fathom. The 40 to drive east of Cook's shaft, on the silver lode, by six men, at 6 $\frac{1}{2}$ per fathom. The lode is producing good saving work for silver. The 40 to drive west of Cook's shaft, by six men, at 6 $\frac{1}{2}$ per fathom. The lode is the same as the 40, east of Cook's, but looking at the spots of silver ore. In two stokes in the back of the 40, east of Cook's, by six men in each, the lode is looking well, yielding rich silver ore. A winze to sink below the 30, on the silver lode, west of Cook's shaft, by six men, at 6 $\frac{1}{2}$ per fathom, yielding good saving work for silver. In the 30 cross-cut, north and east of Cook's shaft, we have driven through several branches of the silver lode, containing a little silver. We shall now commence to drive east, and hope soon to have an improvement in this point. The 30 to drive west of Cook's shaft, by six men, at 6 $\frac{1}{2}$ per fathom. The lode is the same as the lode at present is small, but yielding a little silver ore. A stope in the back of the level, by four men, is yielding saving work for silver.—Harrowbarrow Lode: The 30, to drive east of Cook's shaft, by four men, at 7 $\frac{1}{2}$ 5s. per fathom; lode is worth 12 $\frac{1}{2}$ per fathom. A stope in the back of this level, by four men, is worth 20 $\frac{1}{2}$ per fathom. A stope in the back of the 20, west of Cook's shaft, by four men, is worth 23 $\frac{1}{2}$ per fathom. A stope in the back of the 20, east of Cook's shaft, by four men, is worth 18 $\frac{1}{2}$ per fathom. A stope to drive east of Cook's, by four men, at 5 $\frac{1}{2}$ 10s. per fathom, the lode is small and poor. A stope in the back of the adit, west of Cook's, by four men, is worth 17 $\frac{1}{2}$ per fathom. A stope in the back of the 10, east of Cook's, by four men, is worth 15 $\frac{1}{2}$ per fathom. We have cut the south part of the lode at the 10, west of Cook's, which is worth 12 $\frac{1}{2}$ per fathom. We shall commence to drive on this lode at once.

WHEEL UNY.—W. Rich, Matthew Rogers, Joseph Rich, June 2: We have had to put down a new windrose in the bottom of Hind's shaft, to replace a broken one, which was blown down by a storm of wind. The new shaft is now in place, and the lode is sinking, and the lode is worth 15 $\frac{1}{2}$ per fathom for the length of the shaft. The lode in the 160 west is worth 7 $\frac{1}{2}$ per fathom. The 160 east is worth 5 $\frac{1}{2}$ per fathom. The 150 west is not yet cleared to the end. The rise in the 150 east, towards King's shaft, is worth 8 $\frac{1}{2}$ per fathom. The 150, east of King's, is worth 6 $\frac{1}{2}$ per fathom. The 140 end west is worth 12 $\frac{1}{2}$ per fathom. The 130 east is worth 8 $\frac{1}{2}$ per fathom. We sold to-day 14 tons 6 cwt. 0 qr. 21 lbs. of tin.

CORNISH PUMPING ENGINES.—The number of pumping-engines reported for April is 17. They have consumed 1851 tons of coal, and lifted 14,300,000 tons of water 10 fms. high. The average duty of the whole is, therefore, 52,000,000 lbs., lifted 1 ft. high, by the consumption of 112 lbs. of coal. The following engines have exceeded the average duty:—

Dolcoath—85 in.	Millions	58 6
Mellencarr—76 in.	59 5
West Bassett—Thomas's 60 in.	58 4
West Wheel Seton—Rule's 70 in.	66 7
West Wheel Seton—Harvey's 85 in.	58 9
Wheel Unity Wood		

and Norcross and Gould and Curry have, it is rumoured, passed into the hands of English owners. The managers of the Sutro Tunnel desire to reach the great lode without a fight, and for this purpose these mines have been bought up. It is also rumoured that efforts are being made to bring about a compromise with the Sutro Tunnel Company. The mine managers seem willing to pay liberally for the benefits the tunnel will confer, but are opposed to the royalty. It has been suggested by some that, as a basis for a compromise, in lieu of the royalty, a payment of 25c per day for each foot on the line of the royalty should prove satisfactory to all parties.

Richmond, 64 to 68; the manager's report states that the winze sinking below the 500 west drift was not looking so well, the bottom being in lime-stone, and that a drift had been started to the north-east, it being intended to re-sume sinking the winze so as to connect it with the 600 drift westerly from the shaft, to facilitate the exploration of the new ground. This report is dated May 14, and the telegraph, which states that a rise had been made of 70 ft. in carbonate gram, which states that a rise had been made of 70 ft. in carbonate ore in this westerly ground, is dated May 30. It thus appears that the ore body is making upwards at the point struck, and that it is erratic in its course, like the preceding discoveries. It is stated that there is some chance of an arrangement between the litigants, by which all the points at issue should be merged in one suit, and tried on the merits; this would save great delay, and diminish costs for both. An early day in June is mentioned for the trial. The Sentinel of May 18 reports that "the fifth level strike in the Enns-Adit consolidated promise immense." This discovery, it appears, is under the Margaret ground, about 130 ft. away from the Richmond boundary. It has no bearing, we understand, on the disputed question between the two companies. Since that of the Richmond is one, there is so little more to the fore in meeting the question of damages and costs, and the work is another testimony to the wonderful wealth in Ruby Hill, which is being now yearned with ore in all directions, thus giving value to the extensive locations secured by the Richmond which are yet untouched.

Eberhardt and Aurra, 7 1/2 to 7 3/4; the usual monthly telegram states that the expenditure for May was 28000L, and that 24000L will be required for June. Flagstaff, 1 1/2 to 2 1/2; the e shares have declined in value upon rumours of apprehended difficulties in Utah. It is understood that some members of the board are now on their way to the mine. Esch-quer, 1/4 to 3/8; the ore seems to be improving under assortment, and the manager promises a clean-up and a full report upon the position and prospects of the mine, mill, &c. IXL, 3 to 8; at the date of the late advices ore was being hauled, and the shaft was being sunk to the 400 ft. level. A cross-cut was being put out at the 200 ft. level to strike the adit lode, which, it is expected, will be cut rich.

The market for Hydraulic or Gold Washing Shares does not present any feature of change, and quotations are unaltered. The water season appears to be holding longer than was anticipated, and miners are making the most of it. Blue Tent, 3 to 3½; the last advices from the manager state that the future working of the property is being so shaped as to wash no upper gravel, unless the underlying gravel can be washed during the same season. Had he been able to carry out this plan during the present season it would, it is said, have increased the net profits by \$20,000; the rich portion, however, remains for a future time—that is, when the bottom gravel at Enterprise can be got at. This will effect a saving of 33 per cent. in the items mentioned above. The South Yuba claim is now well opened, and one more blast will afford a clean sweep on the whole face of the channel, and for the first time place the ground on an equal and absolute control. The results obtained thus far this season have been flattering, and will, it is thought, continue to get better as the washing is extended. Occasional showers of rain and snow in the mountains are furnishing considerable water in the company's ditch. Birdseye Creek, ½ to ¾; a letter from the superintendent gives particulars of the work in progress. The short supply of water has retarded operations this season, but Mr. Power expected to make a good run before closing down. Cedar Creek, ½ to ¾; washing is being carried on with all speed, and good results are looked for, as the last blast has opened up a good section of ground.

Lead Mines have been dealt in to a fair extent, and in many cases at advanced quotations. Van, 33 to 35; there is no particular change reported from this mine, where matters are progressing as usual. Grogwinion, $3\frac{1}{2}$ to 4 $\frac{1}{2}$; good progress continues to be made at all points. Wye Valley, $3\frac{1}{2}$ to 4; the latest advices report that prospects continue encouraging. West Wye Valley, $3\frac{1}{2}$ to 4; the sinking of Brooke's shaft is reported to be going on well. The lode is still good, and the other points in the mine are looking satisfactory. South Cwmystwith, $3\frac{1}{2}$ to 4 $\frac{1}{2}$; good progress is said to be making in laying out the dressing-floors, and the mine looking well at all points. Saint Harmon, 3 to $3\frac{1}{2}$; the prospects are considered good for cutting the south lode shortly, rapid progress being made in that direction. Other points in the mine doing well. Red Rock, 2 to 2 $\frac{1}{2}$; good progress is being made at this mine. Pennerley, 4 to $\frac{5}{2}$; it is understood that a fair proportion of the new capital has been subscribed for, and that the directors have extended the time for receiving applications. There is a great extent of untried ground possessed by the company, and the favourable return of tin from the Potter's Pit, which adjoins Tankerville, is on the same lodes. Pateley Bridge, 2 to $2\frac{1}{2}$; the 30 east, on Rake vein, is producing $\frac{1}{2}$ ton of lead ore per fathom. The level west, on the same vein, is worth 1 ton of lead ore per fathom; both ends are looking encouraging. Fielding's vein is worth 1 ton of lead ore per fathom; and the Sun vein is producing $\frac{1}{2}$ ton per fathom. Other parts remain without change. West Pateley Bridge, $1\frac{1}{2}$ to $1\frac{3}{4}$; the lode in the 56 ft level is looking promising for an improvement, and is carrying a branch of lead ore on the footwall. Other points in the mine are also looking well, and promising saving work for lead. Glen Y shares have been enquired for upon encouraging advices as to the condition of the mine.

Subject are the closing quotations:—

Ashcroft, 1½ to 1¼; Carna Brea, 33 to 35; Devon Great Consols, 3½ to 4½; Delahou, 30 to 32½; East Candora, 5½ to 5½; East Lovell, 1 to 1½; East Van, 4½ to 4½; Glen, 1½ to 1¾; Varna, 16 to 17½; Varna, 16 to 17½; Great Laver, 2 to 2½; Kingston Down Consols, 5½ to 5½; Leadhills, 5½ to 5½; Marke Valley, 1½ to 1½; Pine Mountain, 1¼ to 1½; Pateley Bridge, 2 to 2½; Pennerly, 1¼ to 1½; Pennerly, 1¼ to 1½; Roman Argents, 10½ to 10½; Tankerville, 4¼ to 4½; Tinctorf, 4 to 4½; Van, 33 to 35; Van Consols, 15½ to 15½; West Ashcroft, 5½ to 5½; West Ashcroft, 2 to 2½; West Chiverton, 15 to 16; West Tankerville, 1½ to 1½; West Tatesley Bridge, 1½ to 1½; Wheel Crebber, 2 to 2½; Wheel Granville, 1 to 1½; Winkley and Tinto, 1½ to 1½; Cape Argente, 4½ to 4½; Birdseye Creek, 1½ to 1½; East, 3 to 3½; Cape Copper, 35 to 38; Cedar Creek, 3½ to 3½; Chionates, 1½ to 1½; Colorado Terrible, 1½ to 1½; Condes of Chili, 4 to 4½; Don Pedro, 1½ to 1½; Eberhard and Aurora, 7 to 7½; Eschepex, 3½ to 3½; L. X. L., 3½ to 3½; Flagstaff, 1½ to 1½; Fronting and Bolivia, 2½ to 2½; Javali, 3½ to 3½; New Zealand Kapanga, 2 to 2½; Last Chance, 1½ to 1½; Malpas, 3½ to 3½; Malabar, 3½ to 3½; New Pacific, 1½ to 1½; New Quebrada, 2 to 2½; Pestancera, 1½ to 1½; Plina na Eureka, 2½ to 3; Rica, 1½ to 1½; Richmond Consolidated, 4½ to 4½; San Pedro, 7 16ths to 9 16ths; St. John del R-y, 315 to 325; Sierra Nevada, 1½ to 1½; South Aurora, 1 11th to 1 11th; United Mexican, 1½ to 2; Union Preference, 4 to 4½.

COLLIERIES.—If we were to reprint our remarks of last week they would pretty fairly represent the condition of affairs during the week just ended. Colliery shares have fluctuated very little, some having slightly risen, while others are a shade lower, the alteration in either case being due merely to momentary and quite unimportant causes. What alteration there is in the iron trade is of a slightly favourable nature, enquiry for the raw material remaining about the same as last week, while a slight improvement has taken place in manufactured iron. Still trade is very bad, and ironmasters are certainly making little or no profits. We hear of several ironworks in the Cleveland district and several in South Wales for sale, and miners seem shy of coming forward. The exports of coal show a very slight increase on the previous week—in fact, so slight as to be of no consequence. The quantity of pig-iron fuel sent away being slightly on the increase. Wages are being reduced all over the country, and we hear that a reduction of 10 per cent has been agreed to by the men of one or two collieries in the West of England. The reduction has been notified in West Lancashire; and, although the men seem inclined to stand out against it, it is expected that they will very shortly agree to it. The men have suggested that the matter should be referred to arbitration, but were told that each master would willingly meet his own men and explain the necessity of the reduction. This does not seem to have been favourably received, as the Unionists are weak, and much in want of fun is now, and as the largest colliery owners have intimated their intention of closing their works in the event of a general strike, they would throw some 30,000 men out of employment, there can be little doubt that it is not likely to find short duration.

The strike of the Northumberland miners has favourably affected trade in the Durham coal fields, and has given an impetus to the shipments at Tyne Dock. Vexchire also has received increased demand, and a little more business has recently been done. Allam's shares remain at 4½ to 5. The main coal has been sent to the engine pit, section D. We are informed that the Braxey opening out is proceeding satisfactorily. Llay Hall are quoted 9 to 10, being about the same as last week. Most collieries show a slight depression, being at 2 to 2½. Chaplin's are steady at 2½ to 3. The reports are, as usual, as to quality of trade is a little better. Great satisfaction has been given to the quality of the coal from the Park Mine. The new 15 ft. shaft is proceeding very rapidly, and brick-laying has been commenced, a large number of bricks having already been made in the season. Bilson and Crump and Newport Abercrom show no activity. New

Sharlston have slightly recovered their fall, having risen to 3, 4. Cakemore are still at 2½ to 2¾. Thorp's Gawber, 1¾ to 2¾. These showing a slight improvement, while Cardiff and Swansea remain at 1½ to 2.

At Swansea Ticketing, on Tuesday, 1080 tons of copper ore were sold, realising 9,58*l.* 9*s.* 0*d.* The particulars of the sale were—Average standard for 9 per cent. produce, 89*l.* 10*s.* 0*d.*; average produce, 13 5-16; average price per ton, 8*l.* 17*s.* 6*d.*; quantity of fine copper, 143 tons 14 cwt*s.* The following are the particulars of the two last sales:—

Date.	Tons.	Standard.	Produce.	Perton.	Per unit.	Ore copper.
May 22.....	117	£ 88 18 4	10%	£13 8 7	13s. 6d.	267 10 4
June 5.....	1080	89 1 0	13 5-16	8 17 6	13 4	66 13 4

Compared with the last sale, the advance has been in the standard 11s. 6d., in the price per ton of ore about 1s. 6d. Messrs. Richardson and Co. report that the Cape ore gave a produce of 32½, and sold at 13s. 9½d. per unit; the Berchaven gave 7 7 16 produce, and sold at 13s. 2½d. per unit, and the Knockmahon gave a produce of 7½, and sold at 13s. 3½d. per unit. On June 19 there will be offered for sale 2599 tons of ore from Moonta, New Quebrada, Algiers, Knockmahon, Cape, Adjustral, Ireland, Australia, and elsewhere.

TANKERVILLE.—A reference to the manager's monthly setting report, published in another column, will show that the mines have much improved, and that the various cross-cuts now being pushed out will with-out doubt reveal some important discoveries, which must enhance the value of the mines by increasing the monthly sales of lead ores and profits.

WEST TANKEVILLE.—The 75 end is worth 25¢ per fathom, but the principal ore ground being still ahead, an improvement may be expected. The slope in the same level is worth 25¢ per fathom, and another will soon be let in ground of same value. In about 3 fms. further driving they expect to cut the lode in the 63 cross-cut. This is an important point. There are five other stops, varying in value from 1 ton to 25 cwt. each per fathom.

WEST PATELEY BRIDGE (Lead).—The Craven Cross vein, one of the most important in this property, is described by the manager as "very promising for a speedy improvement, being fully 5 ft. wide and carrying a small branch of lead ore on the footwall." All other points continue to open out satisfactorily.

KINGSTON CONSOLS.—This mine having proved very rich in the 18 fm. level, the question has been whether the 30 and 40 fm. levels would prove equally productive. Hitherto the ore bearing parts of these latter levels have not been reached, but from the fact mentioned in the last report of the ore in No. 4 winze going down to the 30 fm. level, valued at 2 tins of blende and 6 cwts. of lead, there can be no doubt the ore bearing part of the lode has been struck and as it can be wrought at the low cost of 35s. per fathom, while the fathom is worth about 12s., a large profit will, it is expected, be realised for the fortunate adventurers.

GLENROY (Lead).—One of the cheapest shares to be had. We are informed they have a working capital on hand of 10,000*l.* (this property adjoins the celebrated Great Laxey, which has paid 344,750*l.* in dividend; the shares, with 4*l.* paid up, are 21*l.*), and there are 14,000 shares—present price about 1*l.* each. The lode is 8 ft. wide and important improvements and discoveries are yet to come off. Investors should not lose sight of Glenroy.

GLENROY.—The lode in the shaft has increased further in size to 7 ft. or 8 ft.

NORTH LAXEY.—The lode in the shaft continues to widen, and be more productive of lead.

WEST CHIVEYTON (Lead).—This mine continues to look well, and but for the late failures in the lead smelting trade, through which the company have lost 3,000*l.* (equal to a dividend of 1*l.* per share) shares would be 18*l.* to 20*l.* each. With the present low price of lead and blende they are making 60,000*l.* yearly in profits. These shares have been talked and forced down far below their real value. There are 3,000 shares, and at 16*l.* each it is only 48,000*l.* for the riches lead mine in Cornwall. The outlay per share has been 12*l.* 10*s.*, and the dividend per share 5*s.*, equal to 165,000*l.* in dividends.

WEST CRAVEN MOOR (Lead).—We understand from reliable information they are opening up a rich mine here. In B A-khill level they have gone over a fine course of solid lead ore for 15 fms. long. The mine improves daily. Some 7500, worth of lead has been sold since December last, and a good parcel of ore now getting ready for next sampling. There is a small number of shares in this company—only 3000. Few progressive mines in the county hold out such bright future.

LEADHILLS.—The last advice from the mines states that the 10 north, on Raik vein, has increased in value since Capt. Waters' last inspection from 42% to 80% per fathom. Again, Gripps' adit level south, on the same lode, has improved from 35% to 60% per fathom. These must be regarded as pioneer points in contrary directions to the rich deposit of ore now being wrought, and must not only greatly add to the prospective value of the property, but irrespectively of other point: add as much to the reserves as the ores at present being brought to market; for 3 fms. per month divrage, calculating 5 fms. up and 5 fms. down, adds 4200%. to the discoveries monthly on this lode alone. The basis upon which 15000. monthly rests is 275 to 300 tons of ore monthly, which, at 14% per ton, gives a money value of 3850% or 4200%. In fact, these two points—the 10 north and the adit south, on Raik lode—are at present opening out the required bulk of lead ore.

EAST PANT-DU (Lead).—We are informed by a correspondent that a very valuable deposit of lead ore has been met with at this mine in North Wales, which is likely to give a fresh impetus to mining in the neighbourhood, in which are situated the Bodidris, Flint-hir, and other mines. The East Pant du, which for some time was the subject of a lawsuit, is now the property of two local gentlemen living at Mold.

HOLMBUSH.—The directors' report and accounts for May show a balance of 126*s*. 8*s*. 9*d*. in favour of the mine, out of which 321*s*. 10*s*. 6*d*. is carried to reserve, and a fifth dividend at the rate of 30 per cent. per annum is declared on the paid-up capital of 22,129*s*. 7*s*. 6*d*. The return of ore sold and stocked during the month gives a total produce of 1922*t*. 16*s*. 3*d*.

WHEAT NEWTON.—We have received the following statement of the sales of ore already made from the new silver lode recently discovered:—						
Date.	Weight of parcel.	Price per ton, dry weight.	Amount of parcel.	Purchaser.		
1.—March, 1877 ..	0t. 80c. 10 18lb.	£ 6 19 9	£ 2 14 7	—Nevill, Drnce, & Co.		
2.—ditto ..	0 5 1 0	39 14 6	10 5 0	ditto		
3.—April ..	0 1 3 124	67 3 0	71 12 2	ditto		
4.—May ..	4 6 3 10	89 9 0	341 2 6	ditto		
5.—June ..	1 4 3 20	59 1 6	75 8 6	Sold through John Smith & Co.		

WEST MOSTYN COAL AND IRON COMPANY.—We are glad to learn that the "troubled ground has been satisfactorily cut through. The coal is very good, and all going on well."

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Particulars of this very valuable Mine will be found in the SIXTH EDITION of Mr. MURCHISON'S work on BRITISH LEAD MINES, published THIS DAY, with Maps, &c., price 2s. 6d. The Prefaces to the Six Editions price 1s.
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COPY OF REPORT.

“Sydney Galvanising Works, Sydney, Oct. 1, 1875.”

“DEAR SIR,—I have much pleasure in stating that I have found the tin smelted at the ‘Kangaroo’ Tin Smelting Works superior to any other Australian smelted tin I have used in my business up to the present time, and in no way inferior but quite equal to the celebrated ‘Lamb and Flag’ tin.

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38, Throgmorton-street, London, E.C. April 28, 1877.

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Notices to Correspondents.

Sir,—Will you allow me to inform your correspondent, in last week's Journal, that the term Chilli, of which he complains, was a misprint for Turkey. At the same time perhaps you will permit me to point out another misprint in the letter inserted on March 24, in which Mr. Brown should have been Mr. Bower.—COMMON SENSE.

INVENTION—"A. C. S." (Glasgow).—The date of the invention is about 18'6" 1867; it has several times been noticed in the Journal. The address asked for is Broad street, Bristol.

"E. R. J." writes—Will anyone inform me whether directors are legally bound to give a written character, or else state in writing, their cause of complaint against a manager who has served out a long contract, and left of his own free will?

GOVERNMENT INSPECTORS' REPORTS—"H. A." (Stourbridge).—We can send you a copy of the Official Reports of the Government Inspectors, noticed in last week's Journal, on receipt of 7s. 6d. to cover cost and postage.

Received—"R. W." (Neath)—"Miner" (Turo)—"C. G." (Next week)—"G. M. S."—"Shareholder" (Bristol)—"Amateur"—"Old Subscriber" (Chatham)—"N. W."—"Shareholder" (West Chiverton).—The meeting was reported in the Journal of May 12—"Shareholder" (York). We could not publish such a letter without the writer's name being attached—"Reader" (Dablin). Very shortly, and all particulars will be given—"B. M."—"Offended" should write to the Journal in which the objectionable statement appeared.

THE MINING JOURNAL.

Railway and Commercial Gazette.

LONDON, JUNE 9, 1877.

LIABILITY OF MASTERS FOR THE DEATH OR INJURY OF SERVANTS IN THE COURSE OF THEIR EMPLOYMENT.

The case of SWAINSON v. the North-Eastern Railway Company, which was decided in the Exchequer Division of the High Court of Justice on the 1st inst., when Mr. Baron POLLOCK delivered the judgment of himself and of Mr. Baron HULLSTON, possesses no slight importance not only for railway companies but also for mining and other companies, and even for private persons, who, in the conduct of their business, may find it to be desirable or advantageous to employ servants jointly with some other company or person. The judgment does not, it is true, enunciate any new legal principle or proposition, but it is nevertheless not devoid of novelty in its way, inasmuch as it extends an old and well-established principle to a state of things to which it has not, we believe, been applied before. That portion of the law of England which regulates the relation in which masters and servants stand to each other and which defines and governs their respective rights and obligations, has long recognised the principle that where a person who may sustain an injury, or who may even be killed, and the person through whose negligence the injury or death arose were engaged in a common employment and in a common service under the same master, no action could be maintained against the master to recover damages for such death or injury provided that he had not himself been personally guilty of negligence. It is to the extension which has been given, in the case above named, to the application of this principle that we desire to call attention, the Court having held it to apply to a case where the servant, although engaged in a common employment with the person through whose negligence the injury, or rather the death, for such was, in fact, the result of the negligent act complained of, was caused was not engaged in a common service under the same master, but was one of the joint-station staff of two railway companies, or was engaged under the joint service of or liable to do certain work for the two companies jointly. The action was brought by the widow of a signalman to recover damages from the defendant for the death of her husband, who was killed in consequence of the negligence of an engine-driver in their service.

The trial took place before the late Mr. Justice QUAIN, at the Trinity Sittings, in Middlesex, last year, and the following facts were then proved. There are at Wellington-street, Leeds, two railway stations, one belonging to the Great Northern Railway Company, and the other to the North-Eastern Railway Company. These stations abut upon, and are approached from, the south by lines of rails, two of which belong to each of the companies, the entrance to and the exit from the stations being regulated by signals and points, worked by signalmen, whose duty is common to both stations. The deceased was at the time of his death, and had for four years previously, been one of these signalmen. But, although he had to perform certain work for the two companies, he was engaged and paid by one company only—by the Great Northern, and he wore their uniform, and he was not made aware at the time of his engagement that he was a joint servant. It was in truth, his duty to attend to the North-Eastern Company's as well as to the Great Northern Company's trains as to points and signals, whenever any engines or trucks had to be transferred from the lines of one company to those of the other company. The deceased, as between the two companies, was one of the joint-station staff, as it was termed, and the whole of the men were engaged and paid by the Great Northern Company, the cost of their wages being treated as a joint charge, and being borne equally by the two companies, and when the deceased received his wages at the end of each week he signed a pay-sheet which was headed—"Great Northern Railway, Traffic Department Pay-bill, Joint-Station Staff." Such were the conditions and circumstances under which the deceased was employed. The circumstances under which he met with his death were the following:—On May 9, 1875, he was, in the discharge of his duty, standing on the 6-ft. space between the Great Northern and the North-Eastern departure lines. A North-Eastern engine with some Great Northern coal trucks came towards the station on the Great Northern arrival line, and he signalled to the driver to go on to the North-Eastern departure line. The driver obeyed, and went on the line for some little distance, when he suddenly reversed his engine, and, without turning on his whistle, and having a van in front of the engine which obscured his view of the line, backed out again. The deceased was then looking in the other direction, there being another train coming in from the south which claimed his attention, and as he failed to see the engine and van coming out, he was struck by the step of the van, knocked down, and killed.

The learned judge at the trial left two questions to the jury—first, was there negligence on the part of the driver of the defendant's engine; and, secondly, was there contributory negligence on the part of the deceased; and they answered the first question in the affirmative, and the second in the negative—a finding which was, no doubt, amply justified and supported by the evidence. There was consequently a verdict for the plaintiff, but the defendants took steps to set this verdict aside, chiefly on the ground that the driver of the engine and the deceased were engaged in a common employment and in a common service, and that the accident which resulted in his death was one of the risks incidental to that employment, the consequences of which he had undertaken. With regard to there being a common employment in which the two men were engaged—in the interchange of the traffic of the two companies—there could be no serious doubt, but with regard to the common service greater difficulty arose. The law has unquestionably required in such cases that a common employment and a common service must have been co-existing in order to absolve the master from liability. Neither element of his immunity would avail without the other, although cases are not wanting in which remarks have been made by the learned judges which tend to show that they entertained the opinion that the principle in question might be applied to cases in which the element of common service might be wanting. In this opinion the learned judges in the present case did not agree, and their reasoning to that effect would seem to be sufficiently plain and convincing. "There would," they said, "be great difficulty in so holding, because when it was said that the servant undertook to incur the risk of the negligent acts of his fellow-servant, the question arose—'Undertook to whom?' So that the principle must, they thought, be limited by confining the undertaking to the master of the servant who was supposed to give it, and that it could not reasonably be extended to strangers, or to

those persons who, though having some interest in a joint operation, were not in some sort the master of the person injured. The learned judges, however, held that the deceased being one of a joint staff, was practically in the service of the two companies, and that there being undoubtedly a common employment also in which both he and the engine-driver were engaged, the case within was governed by the principle already mentioned, and that their judgment must, therefore, be for the defendants, for whom it was accordingly given. Correct as the judgment may be in point of law, and consistent as it may even be with the facts of the case, it is impossible not to be struck by the hardship which must result to the deceased's widow, or by the peculiar concurrence of circumstances which have resulted in clothing the unfortunate man after his death with a character which he probably in his lifetime did not even dream of as belonging to him; for it can scarcely be supposed that a man who was engaged and paid by one company, who wore the uniform of that company, and who was not at the time of his being engaged made aware that he was to be a joint servant, would be likely to regard himself as being in the service of another company, notwithstanding the fact that his chief employers might have seen fit, for their own advantage or convenience, to enter into an arrangement which necessitated the performance by him of some portion of the work of that other company. The judgment as it now stands involves, of course, an extension of principle which gives much to railway companies, and other employers of labour, but neither public companies nor private persons will have any just ground of complaint if one of its results should be to render those whom they may seek to employ more than ever cautious how they enter into the contract of service. Nor can it be expected that it will in other respects be attended by unalloyed advantages. If the joint station staff who do the work of two railway companies are to be regarded as being to such an extent the servants of both companies as to free one or either of those companies from liability for the death or injury to one servant when caused by the negligence of another, the companies must surely be prepared to find that they in their turn may be held jointly responsible for any injury, loss, or damage which may arise to third parties, either from the misconduct or negligence of some one or more of the members of such a staff.

INDIAN RAILWAYS.

The great difficulty of Indian railways may be summed up in one word—bridges, bridges, and yet again bridges. Thus, although the Madras Railway has been on hand for 25 years, and although it has been opened throughout for a considerable period, a great many of its bridges have had to be reconstructed. Only so recently as April 13, 1877, we find the chief engineer writing to the directors:—"The small bridges between Madras and Arcconum, mentioned in my last report, have all been rebuilt. I regret, however, to say that seven other small arches, which hitherto showed no signs of failure, cracked suddenly, and will have to be replaced by rail girders." The chief engineer also observes:—"The progress made at the Hugry bridge has been satisfactory; 31 out of 33 piers are now completed, and the cross girders placed in position. All the girders are riveted, and the sets (ten openings) are rolled and placed in position. The two remaining piers will be completed by the end of the month (April). The pneumatic apparatus will then be sent to the Clay air. The principal work now remaining to be done is putting on the permanent way. This work is in progress, and as the gangs hitherto employed on the Neigherry branch have been transferred to the Hugry bridge I hope to see it rapidly completed, and the bridge opened for traffic in June." Such reports as these show tolerably conclusively, we fancy, the justice of our remark that the great difficulty of the Anglo-Indian railway manager and engineer is bridges, bridges, and ever bridges.

Nevertheless, the Madras Railway, although a good deal troubled with its bridges, has rather thriven than otherwise of late. In consequence of the heavy traffic occasioned by the carriage of the stone required for new harbour works, a proposal was made to double the line as far as the quarries at Umbathoor, a distance of about 10½ miles, the first 3½ miles having already been laid. To this the board consented, the expense being charged to revenue, and being met by the profits earned by the carriage of the material. Since then, in consequence of an intense pressure brought upon the traffic department for carriage of grain, by reason of famine, it has been decided to continue the second line of rails as far as Arcconum (where the junction of the south-west and north-west lines takes place), a further distance of about 32 miles. The cost of this duplication will be chargeable to capital, so far as the materials for the permanent way are concerned, the earth work being executed without charge by famine relief labour. The energies of the locomotive department of the company were taxed to the utmost during the second half of 1876. Repairs were executed on 59 engines in the course of the half-year, and there were 14 under repair at the close of December. Four new boilers were constructed during the same period, and six new boilers were under construction on the last day of the term. During November and December the traffic rapidly increased, and the number of engines in daily use rose from about 93 to 109. Every engine which could possibly be made available was pressed into the service, and four locomotives were hired from the Sindh, Punjab, and Delhi Railway. The traffic continued to increase, and in spite of the utmost exertions at the Paramore Works, it soon became apparent that the number of engines required for the service could not be maintained in repair. Arrangements were accordingly made for hiring 18 more engines, which have since been received. At the close of October, 1876, an indent was prepared for a quantity of new machinery for the workshops; and in January, 1877, another indent for 20 new engines was also submitted for the sanction of the Indian Government.

It will thus be seen that the Madras, in common with the other great trunk lines of British India, is likely to require additional supplies of rails, machinery, and plant from the Mother Country, and it is very satisfactory that this should be the case. Our metallurgical and mechanical industries are in such a depressed condition at present that Indian orders are just now especially welcome.

THE MINERS' CONFERENCE.

The Miners' National Union have just held another conference, but on this occasion there was an entire absence of that jubilant feeling and those exultant expressions which characterised some of their former meetings. The fact is these delegates have seen the storm and are now reaping the whirlwind. The coal trade of this country, regarded in whatever aspect, is in a critical state, and for its present position the colliery proprietors have very largely to thank the Union of the National Miners, and the suicidal policy so persistently pursued by its chief agitators. The incessant demand for increased wages in the time of prosperity naturally brought about a reaction. Coal realised such a high figure that the cost of the production of our steel and iron, tin-plate, and manufactures generally was greatly augmented, and English makers and merchants were undersold, and lost many of the markets of the world of which they once had almost monopoly. The tide of prosperity once turned the reaction was as rapid and complete as its inflow, and to-day our great staple trades and industries are in a more prostrate condition than ever previously known, and our coal trade more ruinously low in price than the present generation has ever witnessed. We unhesitatingly say that this condition of things is due to a very great extent to the action of the Trade Unionists and the Miners' Union. Coal in several of the large South Wales mining districts is selling at from 6s. to 7s. per ton at the pit's mouth, and in other districts at such prices as to be altogether unremunerative, to say nothing about returning a fair percentage upon the large outlay made in winning the coals, the cost of machinery, and the anxieties and responsibilities of the proprietors.

These facts are at last becoming recognised even by the Miners' National Union, as evidenced by the tone of some of the speeches delivered at Newcastle last week, but the anxieties and apprehensions of these Unionists were all centred upon the fear of a "drop" in the rate of wages. Not a single thought seems to have been bestowed upon the interests of the colliery proprietor or the great

staple manufacturer. The immense capital he has expended may lie dormant and unprofitable—the whole fortune of a long life may plodding industry and anxiety may be sacrificed—so long as the wages of the collier are not reduced by a couple of shillings in the pound. Hence the following resolution was proposed:—"That this Conference views with the most serious apprehension the continued fall in the rate of miners' wages, and, believing that such can be stayed by a proper organisation of labour throughout the kingdom, it proposes another conference to specially consider the best mode or by the restriction of it in the daily output for a time." Other similar purport, the great object of the Association being to restrict mining operations both as to the output and the hours of labour. But we make bold to say that this policy advocated by the miners would not achieve the object in view. We do not want to restrict production, much less stop our coal supplies for a month or six weeks, as was suggested. What is wanted in the present crisis is that our coal should be raised at a cheaper rate. We repeat that collieries are not paying, and can only be kept in operation either by a general reduction in the rate of wages, or, what is tantamount to the same thing, the colliers working longer hours, and consequently increasing the output, for the same wages as now paid. We are seriously afraid, judging from the tone of the speeches delivered at present critical condition of the coal trade, and the many staple manufactures, the prosperity of which mainly depends thereon. They are too much in the habit of reading matters through the eyes of Messrs. MACDONALD and Co., the following of whose leadership has on so many previous occasions led to serious consequences.

Will the Miners' National Union ever recognise the fact that their best interests and that of the proprietors are identical, that mutual confidence is the only basis of prosperity and progression. In the present state of the coal trade it is absolutely necessary that the cost of production—not production itself—should be lessened. To this end general notices are given in the great centres of mining operations for a reduction of wages. This step is taken not only in their own interests, but in that of every miner in their employ. The crisis demands prompt action, and if the miners would recognise the position of the trade they would honestly and heartily second the efforts of the masters, and by gracefully acceding to this reduction of wages give material and practical aid in their present difficulties. With a little concession on the part of the men, gracefully yielded, the coal trade may yet right itself. It is with pleasure we see the miners of the South Wales district have agreed to the reduction in wages proposed by the proprietors, and it is to be earnestly hoped the members of the National Union will see their way to follow the good example thus set them.

SEBASTIN—A NEW SAFETY DYNAMITE.

An improved nitroglycerine compound has been invented by Mr. GUSTAF FAHNEHJELM, of Stockholm, the chief modification being that the second main ingredient is charcoal produced from a special wood, and selected and prepared in such a manner as to be able to absorb and solidify the greatest possible quantity of nitroglycerine. In order to render the combustion more complete, and to augment the rapidity of the explosion, a small quantity of nitrate of potash, or other suitable salt, is added to the mixture of the two ingredients above named. Mr. Fahnehjelm is aware of the existence of patents for explosive compounds in which nitroglycerine and wood charcoal are mixed with explosive salts, and especially with chlorate of potash, but in those compounds the salts are applied in large quantity, and serve as the chief base of the compound, while only a small proportion of nitroglycerine is added, and only for the purpose of igniting and exploding the compound. This new compound thus differs from the ordinary dynamite in which the nitroglycerine is absorbed by the infusorial earth, in that the solidification of the oil is effected by the aid of an active base—charcoal of a special kind; and it differs from other explosives, firstly, by reason of the application of the charcoal of a special kind, which is able to absorb from five to six times its weight of nitroglycerine; secondly, by reason of the proportions of the substances, which will be explained further.

In the ordinary dynamite the infusorial earth cannot keep and retain the oil absorbed under certain circumstances. When such a dynamite is exposed to changes of temperature, and especially when it has become frozen, and then passes into the pasty state again a part of the nitroglycerine becomes separated from the mixture. The danger resulting therefrom is not greatly to be feared if the nitroglycerine is absorbed by a charcoal of the kind used in the improved process here in question. In order to produce a charcoal having the required qualities, the carbonisation or coking must be done in such a manner as to completely destroy the organic substances, and to produce as porous a charcoal as possible. For this he selects by preference young trees or saplings, or branches of poplar, hazelwood, or alder tree, and he burns them in an open fire. When the wood has been consumed he does not put out the fire by means of water, but leaves it to go out of itself. In this way he obtains a very inflammable and very porous charcoal, which can absorb more than five, and approaching six, times its weight of nitroglycerine without any risk of the separation of the oil. The charcoal is pulverised in a wooden mortar, but it should not be reduced to too fine a power, else it will not so completely absorb the nitroglycerine. The charcoal produced in the ordinary way, or by closed fire, is quite different as regards absorbing power. Charcoal of fir trees may, however, be used, and may acquire nearly the same qualities, that is if charred a second time in a special oven.

By mixing the different kinds of charcoal a material may be obtained possessing the required absorbing qualities, and an explosive compound may then be obtained of the required power without loss of the necessary consistency—that is, without being too dry, which is not desirable. The charcoal not only serves as the best absorbent for the nitroglycerine, but it plays also an important part in the combustion. The nitroglycerine in exploding decomposes into steam, carbonic acid, nitrogen, and oxygen. In the explosion of dynamite with inert base the oxygen goes away without being utilised, but in the explosion of this new compound (the new sebastin as he calls it) a part of the absorbent charcoal is burnt by means of the liberated oxygen. The quantity of gas is thus augmented, and also the development of heat, whereby again the tension of this gas is augmented. As, however, the quantity of charcoal necessary for the complete absorption of the nitroglycerine is in all cases much larger than that which can reduce the excess oxygen produced at the explosion into carbonic acid, he adds to the compound a salt, which also by the combustion gives an excess amount of oxygen, which may contribute to burn the rest of the charcoal. For this purpose he uses by preference nitrate of potash, which may be added without any risk, and which gives the explosive compound a very much greater rapidity or vehemence, and consequent force of explosion.

The composition of the new sebastin depends upon the objects for which it is to be used, and the effects intended to be produced. The strongest compound, and even in this there is stated to be no risk of the separation of the nitroglycerine, is composed of 75 parts by weight of nitroglycerine, 14 of the wood charcoal, and 8 of nitrate of potash; and when less power is required the proportions are varied, the second quality consisting of 68 per cent. by weight of nitroglycerine, 20 of the charcoal, and 12 of nitrate of potash. To show the relative strength of the compounds, the inventor says—Let the dynamic force of pure nitroglycerine be represented by the number 2,834,033, then the dynamic force of the sebastin No. 1, as above, will be indicated by 2,416,575, and of the sebastin No. 2 by 1,933,079, while that of dynamite No. 1 (consisting of 75 per cent. of nitroglycerine and 25 per cent. of infusorial earth) will be represented by 1,674,694. For the above quantities of sebastin the increased effect produced by the greater rapidity of the explosion must be taken into account also. The increase has not yet been measured, but is estimated at 10 per cent. The sebastin may also be compounded in other proportions of the constituent parts, but the object being to produce explosive compounds of the greatest force

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which it is possible to employ without danger, he merely mentions that the proportion by weight may vary from 50 to 80 per cent. of nitroglycerine, 15 to 35 per cent. of the prepared charcoal, and 5 to 20 per cent. of the nitrate of potash.

It is distinctly to be understood that Mr. Fahnehjelm does not claim the combination of a solid compound of nitroglycerine and wood charcoal prepared in the special mode or modes set forth, the nitroglycerine being the principal ingredient which is absorbed by the wood charcoal to the extent of more than five and reaching nearly six times its weight without risk of this compound parting with any of its oil as set forth; and, secondly, the addition to such solidified nitroglycerine of a quantity of nitrate of potash, or other suitable salt, not exceeding 20 per cent. of the whole mass, for the purpose of rendering the combustion as complete as possible.

COPPER.—Messrs. Richardson and Co., Swansea (June 1) report that the stocks of Chile copper produce remaining unsold there on May 1 were—ore, 2688 tons; regulus, 5615 tons; copper, 2234 tons; barilla, 11 tons. The arrivals during the month were—ore, 56 tons; regulus, 187 tons; copper, 530 tons; and the private sales were—ore, 56 tons; regulus, 185 tons; copper, 300 tons; barilla, 11 tons. The stocks of copper ore on June 1 were—Chile, 2688 tons; Cape, 246 tons; Moonta, 600 tons; New Quebrada, 330 tons; Alge, 270 tons; Spanish, 285 tons; Australian, 29 tons; Norwegian, 140 tons; British, 740 tons; and Rio Tinto, 47 tons; making the total unsold at Swansea 5425 tons. The Chilean regulus in stock was 5251 tons; and the Chilean copper, 2184 tons. These totals represent about 5000 tons fine copper. One private sale of furnace material (regulus) has been reported during the past month, about 200 tons to arrive, at 14s. per unit—since arrived. The Chilean regulus arrived during the month were—For the last half of April, 1550 tons bars and ingots, 550 tons metal in ores and regulus for England, 300 tons bars for France; for the first half of May 1500 tons bars, of which 50 tons are for France. In furnace material our market continues in about the same condition we have had to indicate for some time past, business only being done to satisfy necessities. A considerable quantity of Chile bars have changed hands during the past month, for the most part at declining rates. 68/10s. has been accepted for heavy quantities of g.o.b.s. to arrive.

COAL AND IRON IN THE UNITED STATES.—Business in pig-iron has been fairly active at Philadelphia at former quotations; no large lots could, however, be placed except at some reduction from current rates. There has been a slight improvement at Philadelphia in the demand for bar-iron. The demand for plate and tank iron keeps up pretty well, and the mills are running to their full capacity. The demand for sheet-iron keeps steady at about late quotations; there is not much activity in the trade, but still a fair amount of business has been doing. There have been no large sales of steel rails at Philadelphia, and the market has closed dull and weak. Cash buyers are not in the market to any extent. Quotations range at from 81/1 to 94/8 per ton currency at the mills. The market for iron rails has not improved at Philadelphia; several orders for iron rails have been declined on account of the uncertain character of the collaterals offered as security. On a cash basis, quotations for iron rails have ranged at from 33/3 to 33/5 per ton at the mills, according to terms and quality. While the iron trade has been dull at Pittsburgh, steel manufacturers are all busy, some of them being unable to execute orders on hand with sufficient promptitude. The Baldwin Locomotive Works, Philadelphia, have shipped a specimen locomotive to one of the British colonies in Australasia. The aggregate production of anthracite and bituminous coal in Pennsylvania to May 12, this year, amounted to 7,691,360 tons, against 6,348,386 tons in the corresponding period of 1876, showing an increase of 1,342,974 tons.

REPORT FROM CORNWALL.

June 7.—To whatever topics the mining mind may diverge for awhile it is sure to come back to that which is of the widest and deepest interest—the course of the tin standard. All other topics are and must be subsidiary to this, for this is the most vital of all. Hence there has been a good deal of discussion of late—or rather of conversation—concerning the probable course of the supplies from Australia, and it is very satisfactory to note a general concurrence of independent testimony in the belief that the Australian difficulty is disappearing, and that ere long the Australian production will very materially fall off. Of course, this is no new idea. It has been held more or less ever since the Australian tin found its way into the market. Hitherto it has not been realised, but what gives force to its present belief is the undoubted fact that tin mining proper has not found a home in Australia, and that the production in that country is wholly dependent in practice on alluvial workings, which already give evidence of rapidly approaching exhaustion.

The Great Western Company have completed their arrangements for the purchase of the Cornwall Minerals Railway. It is more an act of policy than anything else—a purchase made with the object if possible of shutting the South Western Company out of the Far West, but we hope the new acquisition will be worked to the advantage of the county. Meantime, the narrow gauge is seeking to enter Cornwall by Calstock, which is also one step towards giving an independent approach to Plymouth and Devonport.

It is astonishing to find how widely the provisions of the Mines Regulation Act, with regard to the fencing of abandoned shafts, are ignored. One would have thought by this time that all this work would have been done, and yet Dr. Foster finds it very much occupying his time, to the exclusion of matters that are in themselves really more important. In several cases of late he has been successful. Mr. Hall, of Peckham, was fined for an open shaft at New Carleau; and Mr. Parkyn, of Roche, for open shafts at Castle and Annas. Mr. Parkyn was fined last year for the same offence at the same mine. It has been suggested that one good heavy fine—100/ or so—would cause this matter to be more thoroughly attended to in the future. In a prosecution regarding Tamar Consols, Dr. Foster failed on a technicality. There was no doubt as to the offence, but it was held that the service of the summons was insufficient. One liquidator is in South America, the other cannot be found; and so the summons was left at the registered office of the company. The majority of the magistrates decided that this was not sufficient, and the Inspector was advised to prosecute the "lord." Of course, somebody is responsible, and if nobody else can be found the "lord" must be. This decision will not tend to encourage lords in the grant of sets if it is carried to its issue; but, after all, they can pretty well take care of themselves.

Although dated as far back as March 22, the report which has been prepared by Dr. Se Neve Foster, F.G.S., on the inspection of the metalliferous mines in his district for the year 1876 has only this week been issued from the office. It is, as usual, a very carefully compiled and valuable document, and several points deserve a fuller consideration than this week we are able to give. The total number of persons employed in the year in the whole district was 21,238, or 1282 less than in 1875. Of these 18,632 were in Cornwall, 2502 in Devon, 54 in Dorset, and 250 in part of Somerset. The number employed underground was 11,085, to 10,153 employed above. No females were engaged underground, and 890 males only under the age of 16, 31 merely being under the age of 13. At surface 743 boys were employed from 8 to 13, and 219 girls of the same ages. Between 13 and 18 there were 1930 males and 963 females; and the total number of females of all ages was 2755. The returns of minerals raised are, of course, incomplete, inasmuch as Dr. Foster's jurisdiction extends only to workings under the Act—that is, mines proper and underground operations; but he is enabled to point to the curious result that, while the number of persons employed has diminished, the quantity of mineral has in most cases increased. This is notably so with black tin. The miner received 7/ to 8/ per ton less than he did in 1875; but in the struggle to meet the expenditure raised 12,637 tons in 1876, against 12,611 in 1875. Dr. Foster congratulates the county on having withstood the storm so bravely; and, though he is very cautious in his reference to the future, appears to lean to the hopeful view. There has been a very gratifying decrease in the number of fatal accidents,

the deaths resulting therefrom being 21 only, as against 46 in the previous year, 51 in 1874, and 60 in 1873; while the number of accidents in the four years fell from 59 to 19. The non-fatal accidents were 74 in number, inflicting injury on 83 persons, which, again, is less than the numbers of 1875, but only slightly. Many of the accidents were directly traceable to the carelessness of the sufferers. What is very noticeable is that there was not a single boiler explosion. Dr. Foster comments with great satisfaction on the new era in Cornish mining, which dates from the first successful employment of machine-boring in the county in the past year. The schedules to the report contain the names of 193 mines at work in Cornwall, and 56 in Devon. Excluding the non-metalliferous workings which come under Dr. Foster's inspection, the mines proper numbered just 240, though those which were in active operation fell considerably short of this. The great majority of the mines produced tin, either alone or with other metals.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

June 7.—Complaints of the unprofitableness of trade are becoming more numerous. Makers of finished iron, not generally of the first class, however, declare that hardly ever before have they parted with their product on such low terms as they are now compelled to take. And even at these low rates they are not able to secure nearly the number of orders that would keep their hands in full work. Indeed, half-time is now considered in many instances to be good work, although not a few mills and forges are completely standing. When the present state of things will improve it is not easy to see. Makers, and in some cases merchants, will not admit that if marked iron were to be officially reduced 1/ a ton, leaving it at 8/4, any benefit to trade would result. Consumers, they assert, would not then buy more iron than they are now doing. A very general quotation for sheets for galvanising purposes is now 8/5s., and although the demand is active, yet it is impossible to secure higher prices. This is in much part due to the large output. The pig-iron business is scarcely in any better fortune than the finished iron trade. The make continues in excess of consumption. Still, only about 50 furnaces are in blast. All mine iron is in the best demand, and the blowing in at Priestfield, by Messrs. Ward, of one of their furnaces, is certainly significant. For most brands prices are kept down by the severe competition from the Cleveland district, and in this respect Staffordshire producers are very much worse off than they were some years ago when their powerful North-east competitor had hardly come into existence. Proprietors of certain collieries where forge coal is being mined are experiencing a better demand consequent upon the stoppage by the underground flood of so many pits. The best sample of forge coal in the Essington district, for instance, is realising 8s. per ton; but there is abundance of forge coal to be had at 7s. 6d. per ton.

It is made known that Messrs. G. B. Thorneycroft and Co. find that it will be impossible to cope with the flood at their Bradley Colliery for many weeks longer, and that they have given all their colliers 28 days' notice to cease work.

Yesterday the Mines Drainage Commissioners resolved to request the arbitrators to levy a rate for the Bilston district.

Colliery proprietors continue to make private arrangements with their men, whereby the raising of coal to the bank is rendered less expensive. The general conditions enforced are that the miners shall either work another hour or accept a drop of 3d. per "day" or stint. The drop is in every case preferred by the operatives. This reduces the wages of the men in the Thin coal district to 2s. 3d. per "day"—a rate which has not previously prevailed for a quarter of a century. But at the earlier date 12 hours a day were being worked.

The most noticeable feature on the Exchange as regards the properties of iron and coal companies is the steady fall in the value of Sandwell Park Colliery shares. The highest price that since my last has been demanded by holders is 17/4. But buyers would not in any instance give that, and several lots have changed hands at 15/4—a drop of 5/4 upon a few weeks back. Holders are now willing to sell at 15/10s. Muntz's Metal shares have been bought at 3/4 prem. The 50/1 shares of the Midland Carriage and Wagon Company have gone off at 90/4, and 7/4 premium has been given for the Patent Nut and Bolt Company's property. The 5 per cent. of the Patent Shaft have sold at par.

The wrought-iron chain makers are agitating for an advance in their wages. The Bromsgrove nailmakers show signs of giving way, and the men are likely to get the "full price list of 1875."

In North Staffordshire no change worthy of note has occurred. Orders at the mills and forges are few, and the make of pig-iron is in excess of demand. The coal trade has not been more active; the household department has been less so.

An extraordinary meeting of the Sandwell Park Colliery Company was held at Birmingham, on Thursday, when propositions were made to increase the capital of the company from 93,750/ to 125,000/; the additional capital being divided into 3125 shares of 10/ each, the present shareholders having the option of taking or of nominating a person to take one new share for every three shares at present held. Considerable discussion ensued, in which much dissatisfaction was expressed with the large outlay at the colliery, and the long time which had elapsed without the coal being brought into the market. Ultimately the resolutions were carried.

Messrs. Colbourn and Somers, of the Haywood Forge, Halesowen, have this week made a huge shaft for a pumping-engine, the weight of which is about 10 tons. The two cranks they sent off a short time ago for the same engine weighed over 4 tons.

REPORT FROM THE NORTH OF ENGLAND.

June 7.—It might have been expected that the returns of the Cleveland Ironmasters' Association, which were posted up on 'Change during the holding of the weekly iron market on Tuesday, would have produced an animating effect, showing as they did that the make of pig-iron for the month of May has been greater than in any previous month for six or seven years past, and that all but a few thousand tons of the enormous quantity had gone into consumption. But the contrary result has accrued. The effect of the figures has been rather depressing than otherwise, and the market has fallen to the extent of about 6d. per ton as compared with the previous week. This result is not easy to account for probably, however, the trade as a whole, has made up its mind that the very fact of about 190,000 tons of pig-iron being produced per month is an indication that it can be produced at a profit, and that consequently it is not unreasonable to look for still further concessions in price. If this is the impression entertained, it is likely to be doomed to disappointment. The rates now current are barely sufficient to cover working expenses, and in some cases they allow less even than that. It is improbable that the cost of production will be materially diminished, so that we cannot look for further abatements in price of either a lasting or a substantial character. Meanwhile business is being done on the basis of 41s. 6d. for No. 3, No. 1 being offered at 45s. per ton. There are now 112 furnaces in blast as compared with 119 at this time last year, and as the make of this may have been about 10,000 tons more than that of May in last year, it must follow that the production per furnace is greater. This result may be accounted for by the working of such enormous blasts as those of the Rosedale and Ferryhill Iron Company, which are estimated to produce 550 to 600 tons each per week. All the most recently erected furnaces in Cleveland have been built of a larger size than those previously in operation. The stocks in the hands of makers have been increased during the past month to the extent of 5577 tons, the total quantity of stock now in makers' hands and in warrant stores being about 235,000 tons. This is a larger quantity than has ever before been stocked at one time in the Cleveland district, but it is not large relatively to the production of the district, which is after all the great test of the importance that ought to be attached to the matter.

On Tuesday a meeting of the ironmasters of Cleveland was held in the Royal Exchange, and resolved that in all contracts entered into with merchants on and after July 1 ensuing the terms of payment shall be cash on the Monday following the delivery of the pig-iron. This movement is intended to do away with the credit

system which has hitherto largely prevailed in the district, and has in many cases been attended with the most calamitous consequences to the owners of blast-furnaces.

It is somewhat remarkable that, in spite of the enormous production of pig iron in the Cleveland district—a production involving, as a matter of course, a corresponding consumption of the raw material—the mineral traffic of the North-Eastern Railway continues to show a steady decline. As compared with the corresponding month in 1875 the mineral traffic receipts for the month ending Saturday last exhibit a falling off equal to at least 12,000/.

This is all the more curious when we remember that there has been an increase of at least 30,000 tons in the consumption of ironstone, and of 10,000 tons in the consumption of coke during the same period. It is evident that the decrease can only be referred to the diminished demand for coal for manufacturing, gas, and household purposes. The Northumberland strike will, of course, affect the North-Eastern Railway traffic in the long run, although it has not yet done so to any very appreciable extent.

The cokemen having agreed to refer to arbitration the question of what special circumstances there are which should subject them to either a greater or a less reduction than the 6 per cent. agreed to by other surface labour, have this week been making preparations therefor. They have appointed Mr. J. S. Jeans, of Darlington, and Mr. Connor, of Bishop Auckland, to act as their arbitrators, while Mr. Douglas Crook, and Mr. J. B. Simpson, of Newcastle, will act in a similar capacity on behalf of the owners. These gentlemen have agreed to invite Sir James F. Stephen, Q.C., to act as umpire. The arbitration proceedings will commence on Tuesday week, at Newcastle. The case of the cokemen will be represented by Mr. Thomas Hart. The decision will affect about 5000 men.

There is little to say about the finished iron trade. Affairs as a rule are without change. Plates are now being quoted as low as 6/ 17s. 6d. per ton, but the current nominal rate is about 7/4 per ton, less 2 1/2 per cent. A fair quantity of work is on hand at the latter figure. Common bars are being sold at 6/4 per ton, and puddle bars at 4/.

The award of the umpire (Sir James Fitz-James Stephen, Q.C.), in reference to the wages of the Cleveland ironstone miners, has just been issued. He has decided that there shall be a reduction of 1d. per ton in the mining rate, and of 7 per cent. in the wages of datal hands. This will represent fully 2s. 6d. per week reduction in the case of men who work six days per week, it being calculated that each man produces 5 1/2 to 6 tons of ironstone per day. The award has, of course, been very disappointing to the men, who expected to get off with a reduction of not more than 3d. per ton.

Mr. John Jones, F.G.S., the secretary of the Iron and Steel Institute and of the North of England Iron Manufacturers' Association, died at his residence, at Saltburn, on Wednesday morning. The deceased has been in very bad health for some twelve months past, but it was not till three months ago that his illness assumed a malignant form. Mr. Jones will be greatly missed by the North of England iron trade, of which he was in many respects the controller and administrator. He was only in his 44th year.

REPORT FROM MONMOUTHSHIRE AND SOUTH WALES.

June 7.—The position of the iron trade may best be described as unaltered. There is about the same amount of work in hand at the various establishments; but prices are still low, and great complaints on this score naturally exist. The plate-mills are fairly occupied. The pig-iron trade is still depressed, and the Ystalyfera Iron Company have been obliged to blow out one of their blast-furnaces. Rails, both steel and iron, are still in fair request. For bars for foreign exportation the demand is but limited. Clearances during the week have been mainly to Norway and Sweden, Brazil and Spain. As to tin-plates, the restriction of make already adopted by the Swansea establishments is now generally the rule throughout the South Wales district. The men work now only two weeks out of every three. Of the coal industry there can be very little of a satisfactory nature to say. Prices have not improved. For steam qualities there is a fair demand, and shipments are well maintained. The advent of summer must, of course, prejudicially affect the house coal trade. For patent fuel there is a better enquiry, and one or two fair orders have recently been given out. The movement for the reduction of colliers' wages is extending in the district. Besides that made by the Aberdare and Plymouth Company, where the men will doubtless resume work, notices to terminate contracts have been posted at collieries at Mountain Ash, Merthyr Vale, Dowlais, at the New Rhos Colliery, Pengam, and other pits in the district. No doubt these notices mean a 10 per cent. reduction. Notwithstanding the fact that several pits were closed, and others only partially employed during the year 1876, it is satisfactory to find from returns issued that, compared with the previous year, the production of coal in South Wales, Monmouthshire, and the Forest of Dean shows an increase of 25 per cent. In 1876 the district named brought one seventh of the coal supply of the United Kingdom to market, while in 1875 it yielded only one ninth. The Merthyr Union Assessment Committee have made large reductions in the assessment of collieries at Dowlais and Gelliger.

In the Common Pleas Division the case of Piggford v. the London and South Wales Colliery Company has come on. It was an action for wrongful dismissal of the plaintiff from his position as manager of the defendants' collieries, which are situated in Monmouthshire. A verdict was agreed to be taken for the plaintiff for 100/ and costs. Mr. Justice Denman interposing while the counsel for the plaintiff was opening the case by stating that he thought it was one which a jury could not satisfactorily decide.

The inquest as to the death of Elias Davies, fireman, who lost his life at the recent explosion at the Deep Pit, Nant-y-Glo, has ended in an open verdict. Mr. Cauffman, Her Majesty's Inspector of Mines, in the course of the proceedings expressed his regret at the laxity of discipline prevailing in some of the local mines, and he hoped that by strict adherence to the law the number of dreadful calamities in the district would be lessened.

Mr. Rowlands, of Aber, Caerphilly, has presented to Mr. Williams, Glove and Shears, a live frog, which was found by a miner while working in a mine at Aber Vale, Caerphilly, at a depth of 16 yds., at the end of a heading 30 to 40 yards from the bottom of the shaft. The frog was found in a cavity a few inches in diameter. The miner drove his mandril into the fore leg of the frog and drew it out on the point. Mr. Williams has made a small cage for the rescued prisoner, in which it has been kept for five weeks. The little fellow is well and hearty, and seems thoroughly to enjoy his comparative liberty. His eyes are light, and seem to be thoroughly developed, but all experiments hitherto have failed to give any proof that he can see. The toes are uncommonly long and slender, and the skin has a bright and healthy appearance. Mr. Williams has presented this natural curiosity to the Cardiff Museum.

A collier, named William Morgan, of Capcoch, was charged before the Aberdare magistrates with a violation of the Mines Regulation Act, by opening his lamp in the Letty Shenkin pit. The evidence of John Williams, a collier, went to show that when working in the stall the defendant knocked his lamp with his mandril and extinguished the light. He then struck a match, re-lit the lamp, and after closing it resumed work. Defendant did not answer to the summons, and the Bench granted a warrant for his arrest.

The directors of the Nant-y-Glo and Blaenau Ironworks Company have issued an interim report, in which they say that, although sublettings at rents of 6900/ per annum have been approved, the company has still retained enough pits to turn out their production of last year—about 400,000 tons of coal. By Aug. 23, in consequence of mortgages falling due, a sum of 145,000/ will have to be provided for. Less certain purchases made, and arrangements entered into, this sum will be reduced to 138,022/. Certain freeholds and leaseholds, comprising 4978 acres, would have to be charged as security. The income derived from properties named would be annually equal to 13,634/., in addition to the minimum rents for sublettings—6900/. Rates payable by Messrs. Barnes of 41/ per ton on all coal passed over the company's railway would be 1166/., bringing up a total of 21,750/; less rent to Lord Abergavenny, 3150/., this sum will be reduced to 18,600/. The last-named amount, say the directors, is a safe and positive income which mortgagees might receive. The interest

on the 138,000Z, at 5 per cent., would amount to 6900Z, which would leave a balance of 11,700Z, to pay subsequent charges. The charges are—Second mortgage, 50,000Z; debentures, 70,000Z; in all 120,000Z. Interest on the former would amount to 2500Z at 5 per cent.; on the latter 7000Z, at 10 per cent.; making 9500Z, and giving a surplus of 2200Z, which would be available for expenses. On an improvement in the coal trade the minimum rents would doubtless increase, and the excess would be equal to 3400Z. The coal raised by the company is estimated to yield a profit of 6d. per ton, equal to 10,000Z; and the value as rent of land on mines is put down at 8000Z, giving a total of 21,400Z; 5000Z a year should be set apart to redeem mortgages, leaving 16,400Z, which might go for dividends to shareholders. Other assets and the valuable surface property are also alluded to, as well as the emoluments from the company's private railway. There is an area of 2200 acres still unlet of the company's property. The directors put down the company's misfortunes to losses as manufacturers; the income not having fallen off in any one year. They add—"In the foregoing report no mention has been made of one of the vendors' mortgage, transferred by Mr. Carlton to Mr. Tamplin, amounting to less than 200,000Z, this mortgage being involved in the company's suit against Messrs. Carlton and Grant for recovering the principal sum of 312,500Z, the amount received by those parties for promotion money."

At the annual meeting of the Glamorganshire Canal Navigation Company a dividend of 4 per cent. was declared.

The strike of masons at Cardiff is virtually at an end, nearly all the men having returned to work.

TRADE OF THE TYNE AND WEAR.

June 5.—The stoppage of the collieries in Northumberland has improved the demand for coals in Durham to some extent, and the shipments at the Tyne Dock and other points on the Tyne and in the Sunderland Docks have been large. There is, however, too much competition in the trade to allow much improvement in prices. The home coal is very quiet, owing to the approach of the warm season, and the competition for the sale of this coal is very great at present, both in the home and distant markets. The gas coal trade is fair, and steam coal shows some improvement. The demand for coke continues good at late rates.

The last of the coal-cutting machines at Hetton has been stopped, so that there is an end of that most determined experiment. The engines worked to compress the air for these coal-cutting machines are still kept going, as the compressed air is used for working hauling engines underground.

The Iron Trade is very quiet, and stocks are increasing; there are now not many furnaces on the Tyne, but at Jarrow a new one is in course of building, and this trade is likely to increase here, as abundant supplies of excellent iron ore are now imported from Spain. The finished iron trade is no better, but founders are well employed on railway chairs and other work. Engineers are also tolerably well employed.

Iron shipbuilding is extremely brisk here, the strike on the Clyde having, it appears, improved the demand. Most of the great yards are full of large ships. At Jarrow, where the works have been dull for a long time past, they are getting into full work again in all the departments. The injury that will be done in the district by the strike of the miners is becoming very apparent. A number of large vessels have arrived in the Tyne this week, intended to be loaded with steam coal. Some of them will be loaded in Tyne Dock, but others must either remain in the river or seek cargo in other districts. The most remarkable feature in connection with the strike is the sudden violent hostility the men show towards their leaders—it is probable that they will throw off all allegiance to them. Even Messrs. Burt and Crawford appear to be losing all their influence; and should this occur we may expect a strike more or less general in the county for some time, and when it terminates that there will be a dissolution of the Union. It is well known, however, that there is a feeling in many localities in the county in favour of the men, and masters at certain works are endeavouring to effect an agreement in all the matters at issue between themselves. At those places, such as Longhirst, there is a strong feeling of the kind; the old tie between masters and men has not yet been broken at those places. Long may it continue, and also take root in other parts.

The question of lubricating oil for machinery has attracted much attention of late, and many oils—good, bad, and indifferent—have been introduced. Many of these oils are imported, and sold as received; others are manufactured or mined in this country. Mr. George Hutchinson, a practical manufacturing chemist, of Forth Banks, Newcastle, has paid much attention to this subject during the past few years, and, having used his oils for a long period, we can vouch for their excellent qualities. He produces a good lubricating oil for ordinary machinery at 2s. 6d. per gallon, and superior sorts at higher rates. He has also succeeded in inventing a process by which castor oil is fitted for the same purpose. The valuable qualities of castor oil as a lubricant are well known, as it will not dry on the bearing, whatever the temperature may be, but the extreme viscosity of the substance has prevented its use. Mr. Hutchinson has, however, overcome this difficulty, and thus produced a most valuable lubricant for fine machinery running at high rates of speed. He has also mixed sperm and castor oil, and thus produced a lubricant unsurpassable for sterling good qualities combined with a reasonable price.

REPORT FROM DERBYSHIRE AND YORKSHIRE.

June 7.—Mining operations have undergone no change in Derbyshire since my last notice, there being still a marked difference in the business doing between those where lead and coal are respectively raised. From the Inspector's return of last year it appears that the quantity of lead ore brought to surface was barely one half of what it was some three or four years ago. No reason has been assigned for this state of things, and there is no reason to suppose that the ore is all but worked out. House coal has been in more active request than it has been for some time past for the London market. To some extent this is one of the results of the strike in the North of England, for consumers in anticipation appear to have laid in considerable stocks, for a much larger tonnage was sent by railway during May than for several months previously. From Clay Cross alone 31,600 tons were sent last month, and about half that quantity from Langley Mill. Steam coal, as is usual at this time of the year, goes off more freely for locomotive and other purposes. A steady business is being done at the ironworks, both in pig and the m. manufactured material.

At one time it was believed that some branches of the Sheffield trade would be considerably benefited by the war, but this has turned out not to be the case, the beligerents drawing their supplies of war material from America, so that matters are even worse than they would otherwise have been. Makers of cutlery still complain of the dearth of orders, the home demand being the best.

The mills have been working tolerably well, but there is nothing in the shape of activity at any of them. The demand for Bessemer rails is not so brisk as it has been, whilst makers of crucible steel are still quiet. Foundry material also is not so much enquired for, and there appears to be greater quietness in the districts outside the town than was the case a month or two ago. The coal trade throughout South Yorkshire has improved a good deal, and there has been a marked increase in the tonnage of Silkestones sent to the Metropolitan via the Great Northern Railway, but prices are just the same. The demand for steam coal for exportation is also better, shipments for Grimsby and Hull having increased. The strike of the colliers in the Newcastle district and the war should both continue for any length of time will be of considerable benefit to the inland colliery proprietors, and the working miners as well.

For a very long time past there had not been such a rapid change in the conveyance of house coal to London by railway as to take place during May, a month in which the consumption, as a rule, falls off, and prices fall. But the reverse has been the case this year, for more coal was forwarded to the Metropolitan during the "merry month" than in any one of the previous four. To some extent this

is attributable, no doubt, to the dispute in the North of England, and to the widely-known fact that several thousands of miners, not only there but in other parts of the kingdom, would be on strike in June, and that in consequence there might be a return to something approaching that state of things which existed in 1873, when coal in the London market advanced to nearly double its present price. But there is not the slightest probability of this taking place, for coal is plentiful, and the power of production is largely in excess of the consumption, whilst new collieries are being rapidly developed, more especially in the West Riding of Yorkshire. No stronger proof that this is really the case need be adduced than the present price of coal, which is even lower than it was a couple of months ago, when there were no strikes in any of our districts, whilst colliery proprietors knowing that no advance can be maintained are reducing the miners' wages. The change, however, has been of considerable advantage to some of the railway companies, particularly the Great Northern, as well as to colliery owners in South Yorkshire, who for some time past have been endeavouring to obtain a reduction of the carriage rate, so as to be better able to compete with the coal going direct from the Tyne to the Thames. The position of the various lines will be seen from the following figures, showing the tonnage taken by them during the last three months:—

	March—tons.	April—tons.	May—tons.
Midland	130,078	124,423	140,874
London and North-Western	96,888	126,794	111,613
Great Northern	65,417	126,021	91,167
Great Western	62,311	74,308	83,919
Great Eastern	45,293	43,913	67,739
London and South-Western	3,092	5,278	3,746
Other lines	1,097	1,543	2,685
Total	408,178	438,107	501,743

REPORT FROM THE FOREST OF DEAN.

June 7.—The Coal and Iron Trades of the Forest are still "down," and work among the colliers especially is very slack and irregular. Some additional wage and other disputes have cropped up since our last, and some old wounds seem to be still festering. A notice for a 5 per cent. further reduction in wages was put up at Light Moor Colliery, on Monday, and, with a view to a just difficulties if possible, a number of the men met Mr. E. Crawshaw at the works, on Wednesday, but failed to realise that object, the men considering that the wages are inadequate to maintain themselves and families, especially with work so irregular, and the proposed reduction would bring their wages rather lower than prior to dear times of labour—eight hours. But they have to take into account the cost of living at present is much higher than prior to the great rise in wages. Workmen—many of them at least—consider themselves worse off than before the time of Unionism, as before Unionism work was more plentiful, and provisions considerably lower in price. Looking at all the relative circumstances, the working colliers and miners consider that they should not descend lower in wages, and therefore seem disposed to use all legitimate means to arrest the downward tendency of the times; and influenced by such motives, the Light Moorsmen on Wednesday last opposed a further drop in wages, though only 5 per cent., and parted from Mr. E. Crawshaw with the resolve to put up a counter notice on the following morning (Thursday). Such at the time we write is the situation of matters at that colliery. The two notices following each other in rapid succession at the Forest Vale Ironworks—the first for 5 per cent., and the second for a 10 per cent. reduction, together 15 per cent., terminated with last week, and the crisis caused much uneasiness amongst the workmen. There was an alternative proposed—that in rejecting the reduction to accept in lieu thereof a return to the long hour system. But the matter was not definitely settled until yesterday, when one of the principals was at the works, and personally went round among the men to ascertain their decision, and to make the best of what they esteemed a bad job, unanimously elected to submit to the reduction in preference to returning to the long hour system. But the workmen, notwithstanding much dissatisfaction, and only yielded as a matter of necessity, would gladly migrate elsewhere if there was any chance of improving their condition; but the general look-out is a gloomy one.

There has been a rupture between the manager and his men at East Slade Colliery. There were alleged discrepancies between the output and the pay-bills, which gave considerable dissatisfaction, and an unfriendly feeling sprang up between the manager and check weighman, the check weighman alleging that he was not fully paid for his time, and in consequence he refused to complete the accounts when requested, upon which the manager dismissed him, but the men retaining their confidence in him wished to employ him and pay him themselves, but the manager refused absolutely to allow it, and as the men pressed the point he ordered the foreman to stop the works, which was done on the 29th ult. Since then the men have sought and had legal advice, the legal opinion being that they were stopped without notice they are entitled to a week's pay without work, and accordingly the pit was idle a week, and as the dispute is still unsettled a report has reached us to the effect that the men went in yesterday and fetched out their tools. It is reported, also, that orders have since come to hand for coal which cannot be executed on account of the stoppage. The men are advised, too, that the Mines Regulation Act gives them power to appoint a check weighman without the veto of the manager—that if he has grievances or objections they are, upon his appeal, matters for magisterial adjudication, as prescribed by the Act. We offer no opinion, but simply report what has occurred. But besides these present differences there remains an old grievance in reference to lime coal, or what passes through the screens at the tip at the wooden house, this small or lime coal, averaging about 100 tons a week, or 200 tons a fortnight, which in the course of a year, supposing there are no interruptions in the pit's operations, the selling price being 6s. a ton, would produce to the proprietors about 1500Z, yet for cutting this coal the men receive nothing. This they do not consider just or equitable, and desire what would be esteemed a reasonable price for the labour involved in cutting it. Such are the matters at issue at East Slade Colliery, and how soon or how long the dispute may last we are not able to say, but anyhow these disputes are regrettable, seeing that they engender strife and ill feeling.

Our buoyant hopes respecting the public works in East Dean have been considerably damped and shaken since their commencement—we allude to the sewage and waterworks at Cinderford. We thought the high character of the engineers a guarantee against bungling and waste, but we were too charitably inclined in our anticipations, for it has transpired since the main sewage pipes were laid in that instead of the work being done for the original contract of 50Z, (we quote from memory, not having time for reference), there has been an extra outlay of 3200Z, exclusive of the connections with private property. The fact is, the system is wrong. How can a few private gentlemen, most of whom live out of the district, and hold their sanitary meetings some six miles away from the works, be expected to properly investigate and supervise works which they seldom see? It cannot be. There will, it is feared, be bungling in connection with the waterworks; indeed, some persons who have visited the intended reservoir in course of construction do not believe that it will be water tight many years, judging by the method of building, and not having time for reference, there has been an extra outlay of the apprehended mischief, notwithstanding that the grounds they allude to appear to be real and founded on facts. Besides which, East Dean is threatened with an expensive lawsuit some six miles from the spring that supplies the stream that runs via Guns Mills and Flaxley, down to the River Severn below Westbury on the Severn. There are five mills on the stream between the water source of the waterworks and its entrance into the Severn. As soon as ever the water is pumped for use in East Dean that will be the signal for suing for damages by the proprietor of Guns Mills, and if he succeeds there will be four other mills to follow suit for damages also. And lawyers seem so deficient in their knowledge of law that they cannot give dependable advice, but have to run up expenses in taking counsel's opinion; and counsel's opinion in too many cases is equally valueless. Years ago, in pointing to the Frow Ditch spring as desirable for water supply at Cinderford, we pointed to the possibility of damages being brought by the owners of mills on the stream; and if the spring originated in private property we have no doubt that damages could be recovered for loss of water by owners on the stream, but a doubt hangs about the matter, since the original grant of the Crown land to the Dean was a reservation of lime now deceased magistrate state it as his opinion, in course of a conversation some few years ago on the subject of cottage and other encroachments upon Crown lands in the Forest, that no time or claim could establish a right against the Crown. We allude to the late Mr. Alfred Gook. Now, if that opinion represents a real matter of fact, the inhabitants of East Dean may be safe against damages for the loss of water upon opening their waterworks; but if it expresses a fiction or mistake we fear that they will not be safe.

LLANRWST.—Captain Knapp reports that the crusher is at work, and that the product of the lode at surface returns more ore than he anticipated, while every point underground continues to yield up to the standard of his reports. A few weeks will now determine the question of water supply, and also the yield of the mines, as from this date all the dressing appliances are erected and in course of operation.

TOLGUS CONSOLS.—The most important feature now in course of development at this mine is the proving of the various branches of the lode at the 25; there are now forming a junction, and great results are looked forward to.

WEST SETON.—The 140 is now driven close to the New Seton boundary, and a lode of ore has been discovered about 3 ft. wide, with 6 in. of a solid slab of ore up and down all the way. Captain Burt is highly pleased with it, and he believes it will lead to a very large bunch of copper ore, as stones coming from the lode are mixed with lead and blende. This end is the furthest west, and is the one which led to the discovery of ore in the 140, and it is likely to lead to the opening up of two miles of country in the northern district, where there are no mines at present at work beyond West Seton. When Seton started before West Seton, and made a profit of 400,000Z, to the adventurers, and then West Seton started, and it has given 247,000Z to the adventurers from the same lode. It is almost impossible to exaggerate the importance of this last discovery in a lode entering New Seton act, which the adventurers very fortunately secured a short time ago. The last sale of

West Seton ore realised 1080Z, instead of 990Z 19s. 6d. as estimated by The returns of tin are increasing, and there is a decreased consumption of end long time.

MINING IN THE ISLE OF MAN.

Brief reference was made in last week's *Mining Journal* to the BELL ABBEY AND FALCON CLIFF MINES, and some further reference may now be made to the prospectus, which appears in another column. The directors regard the investment as "one which will amply repay those connecting themselves with it," and we imagine that after the forcible manner in which they are proving their faith by large personal investments, without apparently seeking to obtain any profit upon handing the concern over to a company, no one can take exception to their belief, especially when they can refer to the reports of four such men as Capt. Walter Eddy, John Kitto, William Kitto, and (their own manager) Richard B. Kitto. It is not frequently that such a quartette are seen together, and it would be difficult for them to speak more hopefully; but by reference to the sections of the mine showing so many places with ore, we can readily understand that. We do not hesitate to recapitulate worth consideration by all who would seek to invest, especially upon equal terms with the vendors of a property; and in this case, if our information be correct, present investors will have the best of the bargain, which certainly is a new feature. We observe they have hitherto abstained from taking any of the usual modes adopted for placing shares, preferring with the aid of personal friends to carry on the works to such a point as should remove all doubt of the result, and facilitate the raising of the capital necessary to do justice to the many and great points of interest which have been met with. Five other parties interested, it is explained, kept going during liquidation, arranged and paid in lower's claims for surface damage, and rent and royalties, obtained new lease for an enlarged and wonderfully improved set, at considerably reduced rent and royalties, besides purchasing all interests from the liquidator—in fact, they are out of pocket about 12,000Z, and are now offering the whole inclusive for 90,000Z, in the strong hope that future success will compensate them. This reads strangely, but we are informed that the facts as stated were proved to the satisfaction of the Crown before the new lease and greatly improved terms would be granted, and are literally true.

The greatest care has been taken in laying out the workings and buildings and in securing the best class of engines, machinery, and other appliances, and the property is now held under Crown lease at unusually low rent and royalties, and has the special advantage of water-power, which will obviate the necessity for erecting additional permanent steam-power to carry out the proposed new workings.

In a thoroughly practical report upon the property Captains W. Eddy and John Kitto state that the copper already sold, as well as that they saw in the mine and at surface, is certainly of superior quality. The lead and blende they take as being about the average of Manx ores. The lode is of great width, the indications promising, and frequent bunches of ore have been met with throughout. These bunches of ore, they explain, have always occurred where the lode has become firm and compact, but as it is disturbed by occasional slides and bands of shale—which may possibly continue to some extent even in depth—they advise them to set the ore ground now laid open in the various levels on tribute (which would at the same time be improving that part of the mine), and devote their principal energies to the ground north and south, where their acquisitions of additional land and trials at surface would appear to have established two distinct mines free from the disturbances alluded to. The entire property, they observe, is very extensive, being about two miles in the course of the main lodes. The machinery is in excellent working condition, and of the best construction. New leases have been obtained on the most reasonable terms, and the additional land to the south (to which reference has already been made) combine to constitute it one of the most promising mining sets in the whole island. In conclusion, they have no hesitation in recommending their at once raising the necessary capital to carry out the workings which they have indicated, and they believe that the shareholders will have occasion to be perfectly satisfied with the necessary expenditure required to develop what they have a right to regard as a thoroughly sound and promising mine.

TANKERVILLE.—The latest advices state that the two forebreasts at the 180 continue good, while the length of the ore ground already opened out is double that possessed at the 167, the next level above. This month's sampling is certain to exceed this month's sale by 25 tons at least.

VENTILATING THE FACES.—In concluding his report, Mr. T. E. Wales (South Wales) again takes the opportunity of impressing on all owners and managers the great importance of making and maintaining all airways of sufficient sectional area to ensure a vigorous ventilation being kept up at the face of the workings. It is of no practical use having a large current of air near the bottom of the shaft if a fair proportion of it is not carried into the faces. No shots should be fired in fiery mines worked on the long wall principle, thorough discipline should be maintained throughout, and the general and special rules strictly observed. Proper places should be fixed upon at a sufficient distance from the workings where the fireman of each district should meet the men before proceeding to their work. In all collieries worked with locked safety-lamps, lamp stations should be fixed for the locking and opening of the lamps, and properly qualified persons should always be in attendance at such places to do such work. In fixing the lamp stations care should be taken to have them only where a large quantity of fresh air is passing, and in such a position, if practicable, that the ventilation shall not be affected by the opening and closing of air doors.

RAILWAY WAGONS AND PIT CORVES.—The invention of Messrs. CHAPMAN and CARR, of Barnsley, relates to improvements in railway wagons and trucks employed in pits, whereby the discharge of their contents is greatly facilitated, and consists in forming the bottom of the vehicle in two parts, each mounted so as to be capable of turning upon a separate swivel or shaft, but arranged in such a manner that by the aid of cranks connected to segmental racks operated by pinions both parts or semi-bottoms simultaneously shall be caused to diverge from the centre downwards for the discharge of the contents of the vehicle, or to converge upwards in order to close the bottom for the receipt of another charge. The semi-bottoms are provided with hinged extension pieces at their outer ends, which turn up when the bottom is brought into its normal horizontal position. Wagons of the ordinary description which are constructed with a beam across the centre, may also be readily modified in accordance with the invention, so that when the ordinary side doors are opened, and (say) a considerable portion of the load is discharged, the semi-bottoms will tip and shoot the remainder.

WANTED.—THE ADVERTISER, an ASSAYER, last employed as Chemist and Manager in a Spleter-works, DESIRES an ENGAGEMENT. Has had experience of the extraction of gold, silver, and lead from their ores; also would not object to go abroad. Speaks Spanish. Highest references. Address, Mr. THOMAS BOWEN, Penrith, near Derby.

WANTED, an EXPERIENCED MINING CAPTAIN, to SUPERINTEND the WORKING of an EXTENSIVE PROPERTY. Address, stating terms, &c., to J. J. BEAUFORD, Knowsley Buildings, Liverpool.

MR. W. TREGELLAS, 122 BISHOPSGATE STREET WITHIN, E.C., Deals in all descriptions of Stocks and Shares at close market prices.

MR. CHAS. BAWDEN, ST. DAY, SCORRIER, CORNWALL, is enabled from recent inspections to ADVISE as to the MOST DESIRABLE MINING PROPERTIES to INVEST INTO, some of which are approaching rich deposits of copper ore. Now selling at a few shillings per share, or less than half the value of their machinery, which may at any time make such discoveries as to cause them to go to several pounds per share.

THE ASSOCIATION OF THE ENGINEERS FELLOWS OF THE MINING SCHOOL OF LIEGE, have resolved to VISIT in August, the SEVERAL COLLIERIES in the district of the WEST OF MONS, and the LEVANT DU PLENU, where powerful AIR COM-
PRESSING ENGINES are being installed.
On this occasion the Society of the Levant du PLENU will put at the disposal of the visitors the means of experimenting any mechanical apparatus, and intended to work in the interior of mines.
The arrangements will take place in presence of the Association, who will delegate a committee to draw up an official report, to be inserted in the Annals of the Association.
For further references to Mr. F. L. CORNET, Engineer-Director of Works, at the Levant du PLENU, at Cuesmes, near Mons, Belgium.

NATIONAL PROVINCIAL BANK OF ENGLAND
BISHOPSGATE STREET (corner of Threadneedle-street),
LONDON, E.C., June 8th, 1877.
The Directors of the National Provincial Bank of England hereby give notice that a HALF-YEARLY DIVIDEND, at the rate of EIGHT PER CENT. PER ANNUM, and a HALF-YEARLY BONUS OF SEVEN PER CENT. will be PAYABLE on the company's Stock on and after the 10th day of July next, when the Dividend and Bonus Warrants may be obtained at the company's office, 112, Bishopsgate Street (corner of Threadneedle-street), or at the different branches.
The Transfer-books will be closed on and after Saturday, the 9th inst. until the 10th inst. and Bonus being payable.
By order of the Court of Directors,
W. HOLT, Joint General
R. FERGUSON, Managers.
T. G. ROBINSON, Joint General
Managers.

THE CAPE COPPER MINING COMPANY (LIMITED).
Notice is hereby given, that at a MEETING of the Directors of this Company, held on the 6th day of June, 1877, it was resolved—"That a DIVIDEND OF TWENTY SHILLINGS PER SHARE, free of income tax, be and is hereby declared, PAYABLE on the 10th day of June instant, to the shareholders on the books of the company on the 10th inst. and that the Transfer-books be closed during the said 10th inst."
By order of the Board,
J. C. LEAVER, Secretary.

NEW QUEBRADA COMPANY (LIMITED).
Notice is hereby given, that an ORDINARY GENERAL MEETING of this Company will be HELD at the City Terminus Hotel, Cannon-street, on MONDAY, the 12th day of June, 1877, at One o'clock, P.M., for the purpose of receiving the directors' report, balance sheet and statement of accounts, and for transacting the ordinary business of the company.
And notice is hereby further given, that the Transfer Books of the company will be closed from Monday, the 25th June, to Saturday, the 7th July, both days inclusive.
By order of the Board,
T. G. GILLESPIE, Secretary.

WILKINS AND CO. LEAD MINING COMPANY (LIMITED).
Capital £10,000, in £1 Shares.
The Directors of this Company call particular attention to this company. They are con- siderable reserves of lead ore ground. They have sold 52 tons of lead since last December, over £750 worth. These sales will shortly increase. Shares are well bid and very scarce.
The property has just been inspected and reported upon by most reliable and practical mining authorities of high standing, Mr. JOHN KENDALL, M.E., and Mr. JOHN LEAS, M.E., and their reports, together with the manager's latest report, will be forwarded upon application.
Investors must bear in mind West Craven Moor is only in 3000 shares, which makes the price (£12 per share, appear high, but if it were in 15,000 or 18,000 shares, like many other mining companies, the price would be about £2 5s. or £2 10s. per share.
The following table gives the number of shares, price, and market value of three shares recommended by GOULD SHARP AND CO., also dividends paid up to date:—

Name of Mine.	Amount paid up.	Present price.	Market value.	Divi- dends paid.
Van (Lead)	£4 5	£24 10	equal to £214,000	£299,525
Roman Gravel.	7 10	11 0	36,000	84,900
Tankerville	6 0	7 0	84,000	61,800
West Craven Moor. 10 0	12 0	36,000 only.	Nil.	

We think West Craven Moor shares are honestly worth £20 per share now, con- sidering the future prospects held out.

WEST CRAVEN MOOR (LEAD) (LIMITED).
NEAR PATELEY BRIDGE, YORKSHIRE.
In 3000 Shares of £10 each. Fully paid. Price about £12 per share.

GOULD SHARP AND CO., STOCK AND SHARE BROKERS,
42, POULTRY, LONDON, E.C.
Established 1852.—Bankers: London and Westminster, Lothbury, E.C.
DISCOVERY OF SILVER AT WHEEL NEWTON.
In view of the HIGH PRICES now being realised for the SILVER ORE obtained from this mine, and looking at the large extent of silver-bearing ground proved, thus making WHEEL NEWTON the RICHEST SILVER-LEAD MINE in the United Kingdom, the official quotation of the shares has been raised to £12, until further notice.
Communications may be addressed to Messrs. EMMENS and Co. (Limited), Mining Engineers and Manufacturing Chemists, at their principal offices, No. 134, Finsbury Buildings, Bishopsgate-street, London, E.C.

WEST TRESAVEAN.—One of the largest and most important DISCOVERIES OF MINERAL for the past 20 years has lately been made in the TRESAVEAN DISTRICT. For full particulars of the Mine and price of the shares relating to the recent discovery, apply to the London and Continental Exchange, 25, Finsbury-place, London, E.C.
A Selected List of Investments, post free.

TO MINING AGENTS, AND OTHERS.—An Independent Gentleman is in possession of FOURTEEN OFFICIAL LISTED RAILWAY SHAREHOLDERS' LIST, comprising the principal Companies in "U.K." (all dated December, 1876). Any of the above can be purchased, specially adapted for Distributing Circulars, Reports, &c.
Address, "Shareholder," at C. H. May and Co.'s General Advertising Office, 25, Gracechurch-street, E.C.

MINING INVESTMENTS.—The present time being considered a favourable one for mining operations, the ADVERTISER, who has had nearly 50 years' experience in mining—17 in Cornwall, and 12 in the management of mines in London—OFFERS his SERVICES in all matters relating to Mining, and gives advice in the selection of Shares in bona fide and well-managed concerns, either for investment or speculation.
Having an established correspondence with some of the most eminent miners and mineowners in the kingdom, he has exceptional facilities for acquiring early and sound information on prominent mining properties.
A Selected List of Mines forwarded on application.
CHARLES BROUGHAM PARRY, St. Michael's House, Cornhill, London.

MR. R. PASCOE, MINING ENGINEER, LAND SURVEYOR
AND GENERAL DRAUGHTSMAN (Fourteen years with JAMES HEN- RY, Esq., C.E.) Mines surveyed or inspected, and faithfully reported on.
OFFICE—4, ST. MARY'S STREET, TRURO, CORNWALL.
A vacancy for a Pupil.

MESSRS. GREGORY, WHITAKER, AND CO.,
STOCK AND SHARE DEALERS, LONDON,
81, BISHOPSGATE STREET WITHIN.
Apply to notify to their clients and investors generally that Shares offered in the LANCY LEAD MINE at low prices, through the medium of this Journal, are, if ever, delivered to the Buyer. To ensure the delivery of Shares bought, purchasers are cautioned to pay cash only on the delivery of transfers, recommended by the holders' certificates.

WILLIAM FRANCIS, M. and C.E., 2, DERWEN VILLAS,
MOLD. Over Twenty-five years' experience. Pupils received for a Course of Instruction in Surveying, Dialling, Levelling, Geology and Mineralogy, and their practical application to the various branches of Metalliferous Mining, Surveying, &c. Terms on application.

MESSRS. THORNYCROFT AND CO.
FINANCIAL AGENTS AND SHARE BROKERS,
81, SOUTH JOHN STREET, LIVERPOOL.

In the Court of the Vice-Warden of the Stannaries.
Stannaries of Cornwall.
IN the MATTER of the COMPANIES ACT, 1862, and of the EAST WHEEL BASSET MINING COMPANY.—ALL CREDITORS or CLAIMANTS of the above-named company who have not received notice from the Official Liquidator thereof that their claims have been already admitted, are hereby required to COME IN and PROVE their several DEBTS or CLAIMS at the Registrar's Office, Truro, on Friday, the 16th day of June inst., at Eleven o'clock in the forenoon, or in default thereof they will be EXCLUDED from the BENEFIT of any DISTRIBUTION made before such proof. And for the purpose of such proof they are to attend in person, or by their solicitors or competent agents at the time and place above mentioned.
Dated Registrar's Office, Truro, the 7th day of June, 1877.
FREDERICK MARSHALL, Registrar.

TAMAR VALLEY SILVER LEAD MINE.
In the parish of BEERFERRIS, and county of DEVON.
THIS MINE, with its POWERFUL STEAM PUMP ENGINE, DRAWING MACHINERY, MATERIALS, TOOLS, and everything thereunto belonging, is TO BE SOLD, in consequence of the death of the late proprietor. It is held by lease, subject to the usual and customary covenants and conditions. The workings are on the main lode of the celebrated neighbouring old Beeralstone Mines, the early working of which dates centuries back, being last worked about 25 years ago, when they were brought to a close by the breaking in of the River Tamar, this being more unfortunate on account of the considerable profits that they were making. It is satisfactory that Tamar Valley is altogether free from any liability to such a casualty.
The mine has attained a depth of 75 fms., at little below which the lode in the neighbouring old mines proved most abundantly productive. Besides being the very same lode, and presenting the same highly approvable general character in Tamar Valley, it is precisely the same clay-slate formation; having been more or less productive for over 70 fms. in extent at the three levels next above the present bottom workings. The ore got and sold has cleared nearly one half of the expenses of the last 12 months' working; paying, moreover, for new mechanical appliances, ensuring the most effectual development of the mine. The bottom level has not to be driven far to be in the run of ore ground discovered in the levels above, which will, it is confidently relied on, be found much more regularly continuous, and in a more profitable concentrated form; also richer for silver at deeper points of development, as in the neighbouring rich old mine: 1 ton of Tamar Valley Mine ore being now worth £21, as it contains 34 ozs. of silver, some having fetched over £22 a ton.

There is unquestionably a mine of great wealth in Tamar Valley, requiring but little deeper development, and not more than £2500, if so much, with the help of the returns of ore, to fully prove the soundness of that opinion; in other words, to sufficiently open out mine to pay high percentage dividends. The shaft is in a complete state for immediate sinking, and the engine is of sufficient power to command the working of the mine to a depth of 120 fms., which is of much too great importance not to be stated. The lode being in the shaft, as it will be all way in sinking (the lode and ground looking most promising at the deepest point reached), there may be any day announced such a discovery as will make Tamar Valley £20,000, and more to begin with; the produce of the lode being, as before intimated, worth over £21 a ton.
Applications to be made to "M. S.," care of the Editor of the MINING JOURNAL, 28, Fleet-street, London.

WEST CALDER.
VALUABLE SMALL MINERAL ESTATE.
TO BE SOLD, BY PUBLIC ROUP, within Dowell's Rooms, No. 18, George-street, Edinburgh, on Wednesday, 20th June, 1877, at Two o'clock, the LANDS and ESTATE of BROTHERTON, in the parish of WEST CALDER, about fifteen miles from Edinburgh, and ten minutes walk from New Park Station.
The LANDS consist of ONE HUNDRED AND TWENTY ACRES, and are let at the rent of £131, on lease, which terminates at Martinmas next. The public burdens are small. The lands lie in the midst of the Mineral Hill District, and contain shale, limestone, and other minerals, believed to be of much value.
There is also freestone, which might easily be worked.
Further particulars will be given by JAMES ROBERTSON, Solicitor, 4, Lindsay-place, Edinburgh, in whose hands are the titles, articles of roup, analyses of shale, &c.

THAT VALUABLE LEAD MINE, EDGE RAKE, and PLANT, in full working order (if not disposed of before, and notice given), TO BE SOLD, BY AUCTION, by Mr. PHILIP HEATON FLINT, on July 2nd, 1877, at the Mine, near TIDESWELL, DERBYSHIRE, two miles from Millersdale Station, Midland Railway.
All that EXTENSIVE MINERAL GROUND and MINE, with 12-horse horizontal ENGINE and BOILER, drum, ropes, pulleys, head stocks, ladders, ore crusher, horse gin, and all requisites for getting, drawing, and dressing lead ore—all in first-class condition. If not disposed of as a whole, the Directors will OFFER THE PLANT IN SEPARATE LOTS.
For particulars, apply to Mr. THOMAS EYRE, Castleton, Derbyshire; or to Mr. C. R. GREGORY, Millersdale, near Buxton, Derbyshire.

IRON MINES.
TWO of the MOST PROMISING, in CORNWALL, TO BE DISPOSED OF. It is assumed from the great facilities of raising and shipping from these mines that 50,000 tons of Red and Brown Hematite can be raised annually, and at a cost of 7s. per ton, yielding at the furnace about 50 per cent. of metallic iron.
Address, "G. B. B.," care of A. H. Baily and Co., 3, Royal Exchange Buildings, London, E.C.

COPPER MINES.
THE MOST VALUABLE COPPER MINE IN GREAT BRITAIN TO BE DISPOSED OF on singularly favourable terms. Ready for immediate work, with ample machinery and unfailing water power. A large quantity of ore at surface. The owner will join in the working, will form a small limited company, or will sell, receiving all payment out of future profits.
Address, "O. and C.," care of Davies and Co., Advertising Agents, Finch-lane, Cornhill.

CANNEL COAL.
THE LEASE OF A SMALL TRACK OF CANNEL COAL TO BE DISPOSED OF on advantageous terms.
Apply to Messrs. JOHNSON, BARCLAY, and JOHNSON, Solicitors, 36, Waterloo-street, Birmingham.

SLATE QUARRY—NORTH WALES.
FOR SALE, the LEASE and PLANT of a VALUABLE QUARRY, about TWO HUNDRED AND FIFTY ACRES in extent, recently opened and now producing slate of the best quality. Advantageously situated for profitable and inexpensive working.
Apply to Messrs. MARSH, MILNER, and Co., Surveyors and Land Agents, No. 54, Cannon street, London, E.C.
PERSONALLY INSPECTED.

SLATE QUARRY IN WALES.
FOR SALE, BY PRIVATE BARGAIN, the NORTHERN WELSH SLATE COMPANY'S QUARRY, "CHWELER FAWR," situated near CARNARVON, in the centre of the BANGOR SLATE RANGE, at present in full operation, producing excellent slates, and comprising ONE HUNDRED AND TWENTY FOUR ACRES, leased from the Crown at a moderate rent.
For particulars, apply to MOORE and BROWN, C.A., No. 166, St. Vincent-street, Glasgow.

A SLATE QUARRY, near to the famous Penrhyn, in North Wales, TO BE DISPOSED OF to a party with means to develop the same. No payment down required.
Address, "Slate," care of Messrs. Pottle and Son, Royal Exchange, E.C.

FOR SALE, and now lying at Minsterley Railway Station, ten miles from Shrewsbury, the following SUITABLE PITWORK, for 20 fms. 16 in. PLUNGER LIFT.
ONE 16 in. PLUNGER POLE, 13 ft. long, new.
ONE 16 in. H. PIECE, in two parts, with door, stopper, seats, and valves, new.
ONE 16 in. DOOR PIECE and door, seats, and valves.
ONE 16 in. flat-bottom WINDROSE.
ONE 17 in. POLE CASE, 10 ft. long.
ONE 16 in. STUFFING BOX and GLAND, bored.
SIX 16 in. PUMPS, 9 ft. long, new.
FOUR 16 in. PUMPS, 6 ft. long, second hand.
TWO 16 in. MATCHING PIECES, 6 ft. long.
Together, about 19 tons.
Also, a quantity of STAPLES and GLANDS, FLANCH and other BOLTS.
Together, about 1 ton 10 cwt.
To view same apply to Capt. HARRIS, Minsterley; and for further particulars to W. J. LAYINGTON, Esq., 14a, Austin Friars, London.

FOR SALE, at NEW PEMBROKE MINE, CORNWALL.
An excellent 80 in. cylinder PUMPING ENGINE, with FOUR good 12 ton BOILERS.
25 in. DRAWING ENGINE, and TWO BOILERS.
TWO SPARE BOILERS.
THREE IRON STAMPS AXLES.
100 fathoms FLAT RODS, 3/4 inch.
A quantity of ROD PLATES and other MATERIALS.
Apply to Mr. JOHN POLKINGHORNE, PAR OFFICE, PAR STATION.

FOR SALE, a 18-horse power PORTABLE STEAM ENGINE, with link motion reversing gear, ready for delivery.
A 25-horse power PORTABLE.
An 18-horse power VERTICAL STEAM ENGINE, with link motion reversing gear, also gear to wind and pump.
A 9 ft. PAN MORTAR MILL, VERTICAL ENGINE, and BOILER.
Apply to—
BARROWS and STEWART, ENGINEERS, BANBURY.

YORKSHIRE LEAD MINES.
FULL PARTICULARS of the PRESENT and FUTURE PROSPECTS of the YORKSHIRE LEAD MINES may be obtained on application to "A. B.," Post Office, Fawley Bridge, Yorkshire.

COAL MINES REGULATION ACT, 1872
EXAMINATION FOR MANAGERS' CERTIFICATES OF COMPETENCY.
DISTRICT UNDER THE CHARGE OF THOMAS CADMAN, Esq.,
H.M. INSPECTOR OF MINES.
NOTICE IS HEREBY GIVEN, that an EXAMINATION for MANAGERS' CERTIFICATES OF COMPETENCY, under the above-named Act, will be HELD on the 9th day of July next, 1877, and CANDIDATES INTENDING TO PRESENT THEMSELVES at such EXAMINATION must, on or before the 24th day of June, notify such intention to the Secretary of the Board of the above-mentioned District, from whom all information as to particulars can be obtained.
By order of the Board,
J. T. THOMAS, Secretary,
Winnalls Hill, near Coleford, Gloucestershire.
N.B.—Persons who do not reside within the District are equally eligible for examination with those who do.

NORTH STAFFORDSHIRE RAILWAY.
THE DIRECTORS OF THIS COMPANY are prepared to RECEIVE TENDERS for the SUPPLY of LOCOMOTIVE COAL, delivered at Derby, or any Station or Siding on the North Staffordshire Railway, in trucks to be provided by the company, in quantities of from TWO HUNDRED to THREE HUNDRED TONS PER WEEK for Twelve Months, commencing July 2nd next.
Tenders, marked "Tenders for Coal," to be addressed to the Secretary, on or before Thursday, the 14th June next.
The Directors do not engage to accept the lowest or any Tender.
By order, PERCY MORRIS, Secretary.
Stoke-upon-Trent, 31st May, 1877.

TO INVESTORS IN MINING PROPERTY.
A GENTLEMAN, 37 years of age, who for the last five years has REPRESENTED, in GERMANY, a COAL MINING UNDERTAKING, for English account, SEEKS a SIMILAR EMPLOYMENT. Is a perfect linguist and correspondent, of good address and great tact; thoroughly conversant with the Mines Regulation Enactments in force in Germany, and the conduct of such property via official control as there executed. Is perfectly acquainted with the practical working of coal mines as obtaining in Germany. Would be willing to make remuneration partly dependent on results. Undeniable testimonials, and security if desired. Would also undertake investigation of and report upon proposed investments on moderate terms.
Address, "Grube," care of Mr. G. Street, 30, Cornhill, E.C.

NEATH, SOUTH WALES.
THE PRACTICE of a deceased MINING ENGINEER, for many years resident and practising in this Town, in the centre of the Colliery District, 1- FOR SALE.
For particulars, and to treat, apply to "K. J.," The Museum, Neath.
Neath, 17th May, 1877.

PARTNERSHIP (ACTIVE) of about £1000, REQUIRED by a Gentleman, where his experience as a PRACTICAL ENGINEER will be useful.
Address, "Engineer," Gazette Office, Brighton.

VERY VALUABLE MINES—SOUTH-WEST OF IRELAND.

EXTENSIVE AND RICH MINES OF SILVER-LEAD, BLENDE, COPPER, &c., which require only to be drained of water in order to make immediate returns of ore. Any amount of machinery may be driven by water-power.
Capitalists will find this a safe and profitable investment; and reliable information may be obtained on application to Capt. W. THOMAS, who has had nearly 40 years' experience in the management of Mines in Ireland.
Cappagh Mine, Ballydehob, Co. Cork, May 28th, 1877.

GLASGOW AND THE HIGHLANDS.
ROYAL ROUTE VIA CRINAN AND CALEDONIAN CANALS, by ROYAL MAIL STEAMER, "IONA," DAILY, at Seven A.M., and from GREENOCK, at Nine A.M.
See bill, with map and tourist fares, free, at Messrs. CHATTO and WINDUS, Publishers, 74, Piccadilly, London; or by post from DAVID HUTCHESON and Co., 119, Hope-street, Glasgow.

MEXICO, NEW MEXICO, ARIZONA, UTAH, NEVADA, AND CALIFORNIA.

F. M. F. CAZIN,
MINING AND CIVIL ENGINEER,
At BERNALILLO, NEW MEXICO, U.S. OF AMERICA.
Has 24 years' experience in Mining and Smelting, and 10 years' experience in American Business and Law, offers his services at moderate charges for Reporting on Mining and other Property in any of the above-named States or Territories; gives correct, safe, and responsible advice as to securing full titles and possession; and, as to best mode of utilizing the property, will assist in settling existing difficulties by compromise, and in disposing of developed mining property when held at real value; offers his assistance for securing undeveloped mining properties at home prices. As to care taken in reporting, reference is made to the Mining Journal, Supplement, April 1, 1876, containing report on property of the Maxwell Land Grant and Railway Company; as to technical standing, to the prominent men of the trade—compare Mining Journal of Aug. 30 and Nov. 31, 1872, and New York Engineer and Mining Journal, Feb. 28, 1874.

MALLEABLE IRON CASTINGS,
Every Description.
W. B. MAPPLEBECK, JUN.,
21 and 22 LOVEDAY STREET, BIRMINGHAM.

DETONATORS
FOR DYNAMITE, LITHOFRACTEUR, GUN COTTON, &c.,
OF THE BEST QUALITY AND STRONGEST POWER,
DELIVERED FREE IN LONDON.
For prices, terms, and full particulars, address—
MESSRS. BRAUN AND BLOEM,
85, GRACECHURCH STREET, LONDON, E.C.

BICKFORD'S PATENT SAFETY FUSE,
FOR CONVEYING FIRE TO THE CHARGE IN BLASTING ROCKS, &c.
Obtained the PRIZE MEDALS at the "ROYAL EXHIBITION" of 1861; at the "INTERNATIONAL EXHIBITION" of 1862 and 1874, in London; at the "IMPERIAL EXHIBITION," held in Paris, in 1865; at the "INTERNATIONAL EXHIBITION," in Dublin, 1865; at the "UNIVERSAL EXPOSITION," in Paris, 1867; at the "GREAT INDUSTRIAL EXHIBITION," at Atlanta, in 1869; TWO MEDALS at the "UNIVERSAL EXHIBITION," Vienna, in 1873; and at the "EXPOSICION NACIONAL ARGENTINA," Cordova, South America, 1872.

BICKFORD, SMITH AND CO.,
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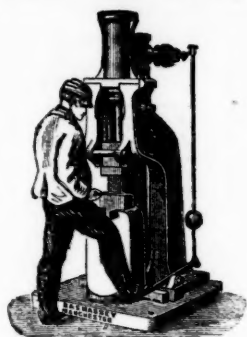
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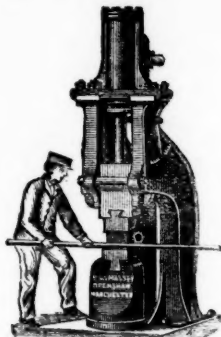
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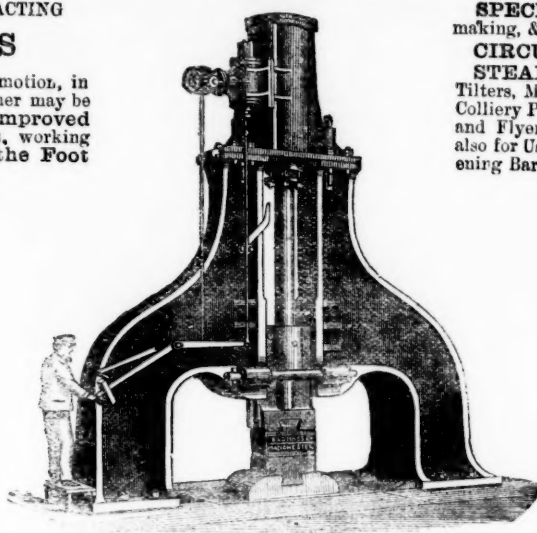
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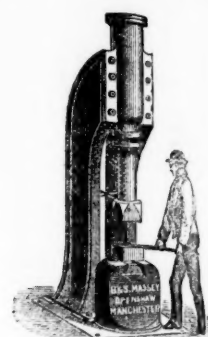
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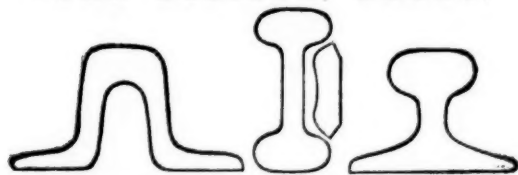
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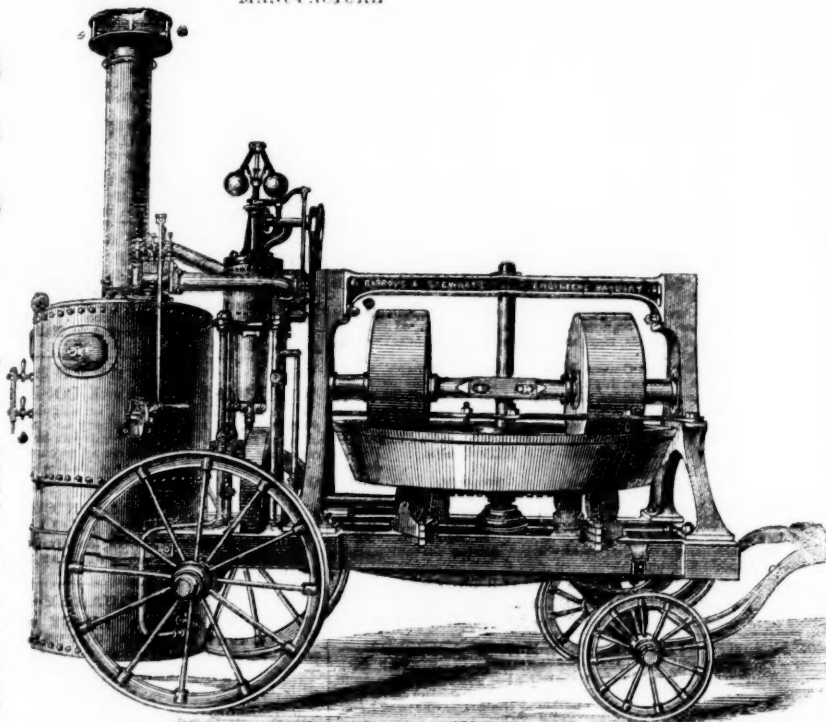
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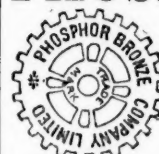
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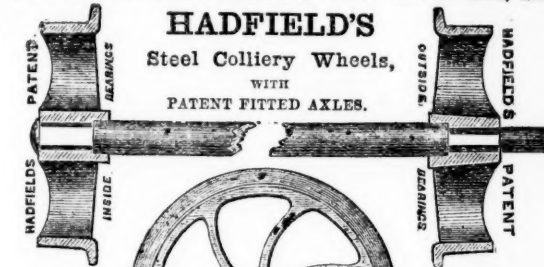
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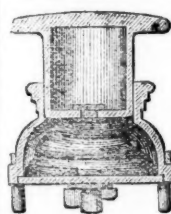


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0	Combellaack, * <i>r</i> , North Devon	15 0 0...	2 0 0...
0	Combellaack, * <i>r</i> , North Devon	2 0 0...	3 0 0...
0	Combellaack, * <i>r</i> , North Devon	3 0 0...	5 0 0...
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0	Combellaack, * <i>r</i> , North Devon	35 0 0...	36 0 0...
0	Combellaack, * <i>r</i> , North Devon	36 0 0...	37 0 0...
0	Combellaack, * <i>r</i> , North Devon	37 0 0...	38 0 0...
0	Combellaack, * <i>r</i> , North Devon	38 0 0...	39 0 0...
0	Combellaack, * <i>r</i> , North Devon	39 0 0...	40 0 0...
0	Combellaack, * <i>r</i> , North Devon	40 0 0...	41 0 0...
0	Combellaack, * <i>r</i> , North Devon	41 0 0...	42 0 0...
0	Combellaack, * <i>r</i> , North Devon	42 0 0...	43 0 0...
0	Combellaack, * <i>r</i> , North Devon	43 0 0...	44 0 0...
0	Combellaack, * <i>r</i> , North Devon	44 0 0...	45 0 0...
0	Combellaack, * <i>r</i> , North Devon	45 0 0...	46 0 0...
0	Combellaack, * <i>r</i> , North Devon	46 0 0...	47 0 0...
0	Combellaack, * <i>r</i> , North Devon	47 0 0...	48 0 0...
0	Combellaack, * <i>r</i> , North Devon	48 0 0...	49 0 0...
0	Combellaack, * <i>r</i> , North Devon	49 0 0...	50 0 0...
0	Combellaack, * <i>r</i> , North Devon	50 0 0...	51 0 0...
0	Combellaack, * <i>r</i> , North Devon	51 0 0...	52 0 0...
0	Combellaack, * <i>r</i> , North Devon	52 0 0...	53 0 0...
0	Combellaack, * <i>r</i> , North Devon	53 0 0...	54 0 0...
0	Combellaack, * <i>r</i> , North Devon	54 0 0...	55 0 0...
0	Combellaack, * <i>r</i> , North Devon	55 0 0...	56 0 0...
0	Combellaack, * <i>r</i> , North Devon	56 0 0...	57 0 0...
0	Combellaack, * <i>r</i> , North Devon	57 0 0...	58 0 0...
0	Combellaack, * <i>r</i> , North Devon	58 0 0...	59 0 0...
0	Combellaack, * <i>r</i> , North Devon	59 0 0...	60 0 0...
0	Combellaack, * <i>r</i> , North Devon	60 0 0...	61 0 0...
0	Combellaack, * <i>r</i> , North Devon	61 0 0...	62 0 0...
0	Combellaack, * <i>r</i> , North Devon	62 0 0...	63 0 0...
0	Combellaack, * <i>r</i> , North Devon	63 0 0...	64 0 0...
0	Combellaack, * <i>r</i> , North Devon	64 0 0...	65 0 0...
0	Combellaack, * <i>r</i> , North Devon	65 0 0...	66 0 0...
0	Combellaack, * <i>r</i> , North Devon	66 0 0...	67 0 0...
0	Combellaack, * <i>r</i> , North Devon	67 0 0...	68 0 0...
0	Combellaack, * <i>r</i> , North Devon	68 0 0...	69 0 0...
0	Combellaack, * <i>r</i> , North Devon	69 0 0...	70 0 0...
0	Combellaack, * <i>r</i> , North Devon	70 0 0...	71 0 0...
0	Combellaack, * <i>r</i> , North Devon	71 0 0...	72 0 0...
0	Combellaack, * <i>r</i> , North Devon	72 0 0...	73 0 0...
0	Combellaack, * <i>r</i> , North Devon	73 0 0...	74 0 0...
0	Combellaack, * <i>r</i> , North Devon	74 0 0...	75 0 0...
0	Combellaack, * <i>r</i> , North Devon	75 0 0...	76 0 0...
0	Combellaack, * <i>r</i> , North Devon	76 0 0...	77 0 0...
0	Combellaack, * <i>r</i> , North Devon	77 0 0...	78 0 0...
0	Combellaack, * <i>r</i> , North Devon	78 0 0...	79 0 0...
0	Combellaack, * <i>r</i> , North Devon	79 0 0...	80 0 0...
0	Combellaack, * <i>r</i> , North Devon	80 0 0...	81 0 0...
0	Combellaack, * <i>r</i> , North Devon	81 0 0...	82 0 0...
0	Combellaack, * <i>r</i> , North Devon	82 0 0...	83 0 0...
0	Combellaack, * <i>r</i> , North Devon	83 0 0...	84 0 0...
0	Combellaack, * <i>r</i> , North Devon	84 0 0...	85 0 0...
0	Combellaack, * <i>r</i> , North Devon	85 0 0...	86 0 0...
0	Combellaack, * <i>r</i> , North Devon	86 0 0...	87 0 0...
0	Combellaack, * <i>r</i> , North Devon	87 0 0...	88 0 0...
0	Combellaack, * <i>r</i> , North Devon	88 0 0...	89 0 0...
0	Combellaack, * <i>r</i> , North Devon	89 0 0...	90 0 0...
0	Combellaack, * <i>r</i> , North Devon	90 0 0...	91 0 0...
0	Combellaack, * <i>r</i> , North Devon	91 0 0...	92 0 0...
0	Combellaack, * <i>r</i> , North Devon	92 0 0...	93 0 0...
0	Combellaack, * <i>r</i> , North Devon	93 0 0...	94 0 0...
0	Combellaack, * <i>r</i> , North Devon	94 0 0...	95 0 0...
0	Combellaack, * <i>r</i> , North Devon	95 0 0...	96 0 0...
0	Combellaack, * <i>r</i> , North Devon	96 0 0...	97 0 0...
0	Combellaack, * <i>r</i> , North Devon	97 0 0...	98 0 0...
0	Combellaack, * <i>r</i> , North Devon	98 0 0...	99 0 0...
0	Combellaack, * <i>r</i> , North Devon	99 0 0...	100 0 0...
0	Combellaack, * <i>r</i> , North Devon	100 0 0...	101 0 0...
0	Combellaack, * <i>r</i> , North Devon	101 0 0...	102 0 0...
0	Combellaack, * <i>r</i> , North Devon	102 0 0...	103 0 0...
0	Combellaack, * <i>r</i> , North Devon	103 0 0...	104 0 0...
0	Combellaack, * <i>r</i> , North Devon	104 0 0...	105 0 0...
0	Combellaack, * <i>r</i> , North Devon	105 0 0...	106 0 0...
0	Combellaack, * <i>r</i> , North Devon	106 0 0...	107 0 0...
0	Combellaack, * <i>r</i> , North Devon	107 0 0...	108 0 0...
0	Combellaack, * <i>r</i> , North Devon	108 0 0...	109 0 0...
0	Combellaack, * <i>r</i> , North Devon	109 0 0...	110 0 0...
0	Combellaack, * <i>r</i> , North Devon	110 0 0...	111 0 0...
0	Combellaack, * <i>r</i> , North Devon	111 0 0...	112 0 0...
0	Combellaack, * <i>r</i> , North Devon	112 0 0...	113 0 0...
0	Combellaack, * <i>r</i> , North Devon	113 0 0...	114 0 0...
0	Combellaack, * <i>r</i> , North Devon	114 0 0...	115 0 0...
0	Combellaack, * <i>r</i> , North Devon	115 0 0...	116 0 0...
0	Combellaack, * <i>r</i> , North Devon	116 0 0...	117 0 0...
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0	Combellaack, * <i>r</i> , North Devon	119 0 0...	120 0 0...
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0	Combellaack, * <i>r</i> , North Devon	121 0 0...	122 0 0...
0	Combellaack, * <i>r</i> , North Devon	122 0 0...	123 0 0...
0	Combellaack, * <i>r</i> , North Devon	123 0 0...	124 0 0...
0	Combellaack, * <i>r</i> , North Devon	124 0 0...	125 0 0...
0	Combellaack, * <i>r</i> , North Devon	125 0 0...	126 0 0...
0	Combellaack, * <i>r</i> , North Devon	126 0 0...	127 0 0...
0	Combellaack, * <i>r</i> , North Devon	127 0 0...	128 0 0...
0	Combellaack, * <i>r</i> , North Devon	128 0 0...	129 0 0...
0	Combellaack, * <i>r</i> , North Devon	129 0 0...	130 0 0...
0	Combellaack, * <i>r</i> , North Devon	130 0 0...	131 0 0...
0	Combellaack, * <i>r</i> , North Devon	131 0 0...	132 0 0...
0	Combellaack, * <i>r</i> , North Devon	132 0 0...	133 0 0...
0	Combellaack, * <i>r</i> , North Devon	133 0 0...	134 0 0...
0	Combellaack, * <i>r</i> , North Devon	134 0 0...	135 0 0...
0	Combellaack, * <i>r</i> , North Devon	135 0 0...	136 0 0...
0	Combellaack, * <i>r</i> , North Devon	136 0 0...	137 0 0...
0	Combellaack, * <i>r</i> , North Devon	137 0 0...	138 0 0...
0	Combellaack, * <i>r</i> , North Devon	138 0 0...	139 0 0...
0	Combellaack, * <i>r</i> , North Devon	139 0 0...	140 0 0...
0	Combellaack, * <i>r</i> , North Devon	140 0 0...	141 0 0...
0	Combellaack, * <i>r</i> , North Devon	141 0 0...	142 0 0...
0	Combellaack, * <i>r</i> , North Devon	142 0 0...	143 0 0...
0	Combellaack, * <i>r</i> , North Devon	143 0 0...	144 0 0...
0	Combellaack, * <i>r</i> , North Devon	144 0 0...	145 0 0...
0	Combellaack, * <i>r</i> , North Devon	145 0 0...	146 0 0...
0	Combellaack, * <i>r</i> , North Devon	146 0 0...	147 0 0...
0	Combellaack, * <i>r</i> , North Devon	147 0 0...	148 0 0...
0	Combellaack, * <i>r</i> , North Devon	148 0 0...	149 0 0...
0	Combellaack, * <i>r</i> , North Devon	149 0 0...	150 0 0...
0	Combellaack, * <i>r</i> , North Devon	150 0 0...	151 0 0...
0	Combellaack, * <i>r</i> , North Devon	151 0 0...	152 0 0...
0	Combellaack, * <i>r</i> , North Devon	152 0 0...	153 0 0...
0	Combellaack, * <i>r</i> , North Devon	153 0 0...	154 0 0...
0	Combellaack, * <i>r</i> , North Devon	154 0 0...	155 0 0...
0	Combellaack, * <i>r</i> , North Devon	155 0 0...	156 0 0...
0	Combellaack, * <i>r</i> , North Devon	156 0 0...	157 0 0...
0	Combellaack, * <i>r</i> , North Devon	157 0 0...	158 0 0...
0	Combellaack, * <i>r</i> , North Devon	158 0 0...	159 0 0...
0	Combellaack, * <i>r</i> , North Devon	159 0 0...	160 0 0...
0	Combellaack, * <i>r</i> , North Devon	160 0 0...	161 0 0...
0	Combellaack, * <i>r</i> , North Devon	161 0 0...	162 0 0...
0	Combellaack, * <i>r</i> , North Devon	162 0 0...	163 0 0...
0	Combellaack, * <i>r</i> , North Devon	163 0 0...	164 0 0...
0	Combellaack, * <i>r</i> , North Devon	164 0 0...	165 0 0...
0	Combellaack, * <i>r</i> , North Devon	165 0 0...	166 0 0...
0	Combellaack, * <i>r</i> , North Devon	166 0 0...	167 0 0...
0	Combellaack, * <i>r</i> , North Devon	167 0 0...	168 0 0...
0	Combellaack, * <i>r</i> , North Devon	168 0 0...	169 0 0...
0	Combellaack, * <i>r</i> , North Devon	169 0 0...	170 0 0...
0	Combellaack, * <i>r</i> , North Devon	170 0 0...	171 0 0...
0	Combellaack, * <i>r</i> , North Devon	171 0 0...	172 0 0...
0	Combellaack, * <i>r</i> , North Devon	172 0 0...	173 0 0...
0	Combellaack, * <i>r</i> , North Devon	173 0 0...	174 0 0...
0	Combellaack, * <i>r</i> , North Devon	174 0 0...	175 0 0...
0	Combellaack, * <i>r</i> , North Devon	175 0 0...	176 0 0...
0	Combellaack, * <i>r</i> , North Devon	176 0 0...	177 0 0...
0	Combellaack, * <i>r</i> , North Devon	177 0 0...	178 0 0...
0	Combellaack, * <i>r</i> , North Devon	178 0 0...	179 0 0...
0	Combellaack, * <i>r</i> , North Devon	179 0 0...	180 0 0...
0	Combellaack, * <i>r</i> , North Devon	180 0 0...	181 0 0...
0	Combellaack, * <i>r</i> , North Devon	181 0 0...	182 0 0...
0	Combellaack, * <i>r</i> , North Devon	182 0 0...	183 0 0...
0	Combellaack, * <i>r</i> , North Devon	183 0 0...	184 0 0...
0	Combellaack, * <i>r</i> , North Devon	184 0 0...	185 0 0...
0	Combellaack, * <i>r</i> , North Devon	185 0 0...	186 0 0...
0	Combellaack, * <i>r</i> , North Devon	186 0 0...	187 0 0...
0	Combellaack, * <i>r</i> , North Devon	187 0 0...	188 0 0...
0	Combellaack, * <i>r</i> , North Devon	188 0 0...	189 0 0...
0	Combellaack, * <i>r</i> , North Devon	189 0 0...	190 0 0...
0	Combellaack, * <i>r</i> , North Devon	190 0 0...	191 0 0...
0	Combellaack, * <i>r</i> , North Devon	191 0 0...	192 0 0...
0	Combellaack, * <i>r</i> , North Devon	192 0 0...	193 0 0...
0	Combellaack, * <i>r</i> , North Devon	193 0 0...	194 0 0...
0	Combellaack, * <i>r</i> , North Devon	194 0 0...	195 0 0...
0	Combellaack, * <i>r</i> , North Devon	195 0 0...	196 0 0...
0	Combellaack, * <i>r</i> , North Devon	196 0 0...	197 0 0...
0	Combellaack, * <i>r</i> , North Devon	197 0 0...	198 0 0...
0	Combellaack, * <i>r</i> , North Devon	198 0 0...	199 0 0...
0	Combellaack, * <i>r</i> , North Devon	199 0 0...	200 0 0...
0	Combellaack, * <i>r</i> , North Devon	200 0 0...	201 0 0...
0	Combellaack, * <i>r</i> , North Devon	201 0 0...	202 0 0...
0	Combellaack, * <i>r</i> , North Devon	202 0 0...	203 0 0...
0	Combellaack, * <i>r</i> , North Devon	203 0 0...	204 0 0...
0	Combellaack, * <i>r</i> , North Devon	204 0 0...	205 0 0...
0	Combellaack, * <i>r</i> , North Devon	205 0 0...	206 0 0...
0	Combellaack, * <i>r</i> , North Devon	206 0 0...	207 0 0...
0	Combellaack, * <i>r</i> , North Devon	207 0 0...	208 0 0...
0	Combellaack, * <i>r</i> , North Devon	208 0 0...	209 0 0...
0	Combellaack, * <i>r</i> , North Devon	209 0 0...	210 0 0...
0	Combellaack, * <i>r</i> , North Devon	210 0 0...	211 0 0...
0	Combellaack, * <i>r</i> , North Devon	211 0 0...	212 0 0...
0	Combellaack, * <i>r</i> , North Devon	212 0 0...	213 0 0...
0	Combellaack, * <i>r</i> , North Devon	213 0 0...	214 0 0...
0	Combellaack, * <i>r</i> , North Devon	214 0 0...	215 0 0...
0	Combellaack, * <i>r</i> , North Devon	215 0 0...	216 0 0...
0	Combellaack, * <i>r</i> , North Devon	216 0 0...	217 0 0...
0	Combellaack, * <i>r</i> , North Devon	217 0 0...	218 0 0...
0	Combellaack, * <i>r</i> , North Devon	218 0 0...	219 0 0...
0	Combellaack, * <i>r</i> , North Devon	219 0	

IRON AND COAL COMPANIES
Company.

IRON AND COAL COMPANIES.		Shares.	
Company.	Price.	Shares.	Price.
101 Abbot, John, and Co. [L.]	75 0 0	101	75 0 0
15 Albion Steel and Wire Co. [L.]	5 0 0	102	5 0 0
6 Alkali Colliery Co. [L.]	5 0 0	103	5 0 0
10 Ashbury Co. [L.]	5 0 0	104	5 0 0
10 Bagnall, John, and Sons [L.]	5 0 0	105	5 0 0
10 Benhar Coal Co. [L.]	5 0 0	106	5 0 0
60 Bilbau Iron Co. [L.]	5 0 0	107	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	108	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	109	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	110	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	111	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	112	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	113	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	114	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	115	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	116	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	117	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	118	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	119	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	120	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	121	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	122	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	123	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	124	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	125	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	126	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	127	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	128	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	129	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	130	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	131	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	132	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	133	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	134	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	135	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	136	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	137	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	138	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	139	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	140	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	141	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	142	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	143	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	144	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	145	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	146	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	147	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	148	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	149	5 0 0
4 Bilsen & Crump Meadow Coll. Co. [L.]	5 0 0	150	5 0 0

WAGON COMPANIES.			
am Wagon Co. [L.].....	10	0 0 ..	20% 31
nd Iron	4	0 0 ..	3% 4
ef., 6 per cent.	10	0 0 ..	12% 4
Wagon Co. [L.].....	10	0 0 ..	12% 4
[L.]	10	0 0 ..	12% 4
Issue	10	0 0 ..	12% 4
ar. and Wagon Co. [L.]...	5	0 0 ..	13% 4
r., 6 per cent.	5	0 0 ..	3% 4
.....	5	0 0 ..	5% 4
.....	5	0 0 ..	0% 4
al Wagon Co.	20	0 0 ..	0% 4
[L.] (Oldbury)	5	0 0 ..	27% 20
r., 6 per cent.	5	0 0 ..	10% 10
.....	5	0 0 ..	8% 6
Wagon Co. [L.].....	15	0 0 ..	24% 3
Wagon Co. [L.].....	10	0 0 ..	0% 3

ELEGRAPIH COMPANIES.			
can	100	0 00	59% 59%
marine	10	0 00	5% 5%
States Cab'e	20	0 00	12% 12%
.....	10	0 00	7% 7%
Australia and China...	10	0 00	7% 7%
.....	10	0 00	7% 7%
.....	25	0 00	18 18
Extension	10	0 00	2% 3%
.....	2	0 00	8 10
Panama	100	0 00	22% 22%
.....	10	0 00	3% 3%
Brazilian	20	0 00	8% 8%
7 per cent. Mort. Bonds \$1000	100	0 00	100 100

MISCELLANEOUS.				
Frat Western Leased				
Land and Finance [L.]	100	0 00..	37	40
Cultural [L.]	8	0 00..	38	4W
[L.]	21	10 00..	88	30
olo, s per cent.	7	0 00..	4	8
m [L.]	100	0 00..	108	107
Key Con. Mort.	10	0 00..	114	134
lyst, 1st Mort. s p.e.	100	0 00..	65	87
al Property [L.]	100	0 00..	108	107
Eng. (7 p. c. puf.)	12	0 00..	1	1W
ring	26	0 00..		
ign Credit	4	10 00..	134	1
ouse [L.]	8	0 00..		
Co. [L.]	14	0 00..	13	1W
l. Works Co. [L.]	10	10 00..	108	114
Quarry	1	0 00..		
	1	0 00..		

any	17	0 0...	11%	19
and Sul. Co. ...	9	0 0...	8%	7% ^{1/2}
0 shares	100	0 0...	51	63
Bridge, 1st Mort.	100	0 0...	93	95
per cent.	100	0 0...	55	60
Fund, 5 p. cent.	100	0 0...	89	91
	100	0 0...	101	108
	7	10 0...	7	7%
teate	—	—	8%	—
te, A, 5 p. cent.	100	0 0...	95	97
	10	0 0...	9%	10%
ort., 6 per cent.	5	0 0...	8%	10%
company	5	0 0...	4%	4% ^{1/2}
	6	0 0...	1/2	dis. ^{1/2} ^{1/2}
al Steam	50	0 0...	28	40
p. cent., 1910.	100	0 0...	105%	105%
d, 5 p. ct., 1905	100	0 0...	84	86
ent Company.	100	0 0...	160	180
ference	100	0 0...	120	100
	10	0 0...	—	—
	20	0 0...	—	—
Mainte. [L.]..	12	0 0...	27	30
ree per Cents	5	0 0...	23%	23%
pper Co.	5	0 0...	23%	23%
nt, 1st Mort.	100	0 0...	97	99
1st Mort.	100	0 0...	104%	108%

[illegible]

20 Direct United	1 0 0	5	5	5	5
10 Eastern	1 14 0	1	1	1	1
10 East. Exten.	37 0 0	11	10	11	11
25 Indo-European	7 4 4	1	1	1	1
10 Mediterranean	46 17 9	1	1	1	1
8 Routers	1 0 0	1	1	1	1
Stk. Submarine	1 0 0	1	1	1	1
10 West India and	2 0 0	2	2	2	2
20 Western and B	1 0 0	1	1	1	1
\$1000 Western Union	1 0 0	1	1	1	1
20 Direct United	1 0 0	5	5	5	5
10 Eastern	1 14 0	1	1	1	1
10 East. Exten.	37 0 0	11	10	11	11
25 Indo-European	7 4 4	1	1	1	1
10 Mediterranean	46 17 9	1	1	1	1
8 Routers	1 0 0	1	1	1	1
Stk. Submarine	1 0 0	1	1	1	1
10 West India and	2 0 0	2	2	2	2
20 Western and B	1 0 0	1	1	1	1
\$1000 Western Union	1 0 0	1	1	1	1
20 Direct United	1 0 0	5	5	5	5
10 Eastern	1 14 0	1	1	1	1
10 East. Exten.	37 0 0	11	10	11	11
25 Indo-European	7 4 4	1	1	1	1
10 Mediterranean	46 17 9	1	1	1	1
8 Routers	1 0 0	1	1	1	1
Stk. Submarine	1 0 0	1	1	1	1
10 West India and	2 0 0	2	2	2	2
20 Western and B	1 0 0	1	1	1	1
\$1000 Western Union	1 0 0	1	1	1	1
20 Direct United	1 0 0	5	5	5	5
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25 Indo-European	7 4 4	1	1	1	1
10 Mediterranean	46 17 9	1	1	1	1
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Stk. Submarine	1 0 0	1	1	1	1
10 West India and	2 0 0	2	2	2	2
20 Western and B	1 0 0	1	1	1	1
\$1000 Western Union	1 0 0	1	1	1	1
20 Direct United	1 0 0	5	5	5	5
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20 Western and B	1 0 0	1	1	1	1
\$1000 Western Union	1 0 0	1	1	1	1
20 Direct United	1 0 0	5	5	5	5
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10 East. Exten.	37 0 0	11	10	11	11
25 Indo-European	7 4 4	1	1	1	1
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10 West India and	2 0 0	2	2	2	2
20 Western and B	1 0 0	1	1	1	1
\$1000 Western Union	1 0 0	1	1	1	1
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20 Western and B	1 0 0	1	1	1	1
\$1000 Western Union	1 0 0	1	1	1	1
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20 Western and B	1 0 0	1	1	1	1
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20 Direct United	1 0 0	5	5	5	5
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8 Routers	1 0 0	1	1	1	1
Stk. Submarine	1 0 0	1	1	1	1
10 West India and	2 0 0	2	2	2	2
20 Western and B	1 0 0	1	1	1	1
\$1000 Western Union	1 0 0	1	1	1	1
20 Direct United	1 0 0	5	5	5	5
10 Eastern	1 14 0	1	1	1	1
10 East. Exten.	37 0 0	11	10	11	11
25 Indo-European	7 4 4	1	1	1	1
10 Mediterranean	46 17 9	1	1	1	1
8 Routers	1 0 0	1	1	1	1
Stk. Submarine	1 0 0	1	1	1	1

Camboresue	47	0 0 0	2 1/2	2 1/2	2 1/2	Stk. N. Cent. Rail. Con. M.
.....	11	10 0	3 1/2	30	33 1/2	5 Patent Gunpowder Co.
.....	0	10 0 0	3 1/2	3 1/2	3 1/2	5 Pawson and Co. [L.]
.....	2	0 0 0	2	1 1/2	2	50 Pennsular and Orient.
.....	1	5 0 0	2 1/2	4 1/2	5	50 Pennsular and Orient.
.....	2	1 0 0	2 1/2	1 1/2	2	Stk. Ditto, Aust. Invest.
.....	2	1 0 0	1 1/2	1 1/2	1 1/2	Stk. Scottish Assn. Mort.
.....	1	14 0	1 1/2	1 1/2	1 1/2	Stk. Ditto, 6 per cent.
.....	6	7 6	2	2 1/2	3	20 Silver Light (ord. sh.)
.....	2	1 6	3 1/2	2 1/2	3	12 Telegraph and Cable
.....	13	11 6	1 1/2	1 1/2	1 1/2	5 Ditto, Second Constr. &
.....	4	0 0 0	1 1/2	1 1/2	1 1/2	10 Thariss Sulphur and Cr.
.....						Stk. Union Pacific Land Gr.
.....						Stk. Union Pacific Railway,

2	0 0	2%	3%	3%	50 Dawson and Co. [L.]
3	0 0				51 Peninsular and Oriental
4	2 0	2	1 1/2	2	87k Penny (see Mort.)
5	1 50	5	1 1/2	2	88k Ditto, Con. Suez
6	2 0	2	1 1/2	2	89k Ditto, Con. Suez
7	2 80	2	1 1/2	2	90k Scottish Aust. Investm.
8	1 14 0	1 1/2	1 1/2		91k Ditto, 6 per cent. Preference
9	6 7 6	2			10 Silber Light (ord. sh.)
10	2 1 6	3	2 1/2	3	11 Telegraph
11	13 11 6	1 1/2	1 1/2	1 1/2	12 Second Construe. &
12	4 0 0	4			13 Ditto, Canal Shares
					14 Ditto, Second Construe. &
					15 Tharsis Sulphur and Co.
					16 Union Pacific Land Gr.
					17k Union Pacific Railway,

g, gold; *l*, lead; *s*, silver; *sl*, slate;
lead, *l*, tin; *x*, zinc.

[illegible]

th Plympton	2 6 6...	1 1/2	1 1/2	1 1/2	8tk. Ditt, 6 cent. Investm
th	1 4 0...	1 1/2	1 1/2	1 1/2	10 Silber Litter, 6 cent. Pre
took	2 1 6...	3	2 1/2	3	2 Suez Canal shares
th	2 1 6...	3	2 1/2	3	5 Telegraph Construc, &
th	13 11 6	1 1/2	1 1/2	1 1/2	10 Thariss Sulphur and Co
th	4 0 0...	4	1 1/2	1 1/2	8tk. Union Pacific Land R
th	4 0 0...	4	1 1/2	1 1/2	8tk. Union Pacific Railway

s, gold; *l*, lead; *si*, silver; *sl*, slate;
lead; *ti*, tin; *x*, zinc.

Stock	5	6	2	2 1/2	3	20	Ruez Canal shares
North	2	1 1/2		3 1/2	1 1/2	12	Telegraph Construct.
West	13	11	6	1 1/2	1 1/2	5	Ditto, Therais Construe. &
	4	0	0	0	4	10	Therais Bonus Th
							10 Therais Sulphur and Co
							Stk. Union Pacific Land Gra
							Stk. Union Pacific Railway,

g, gold; *l*, lead; *s*, silver; *sl*, slate;
lead; *t*, tin; *x*, zinc.

10 11 6... 1 1/2 1 1/2 1 1/2
 4 0 0... 4 ... 4

; s, gold; l, lead; s, silver; si, slate;
 lead; t, tin; x, zinc.

5 Ditto, Second Bonus Tr.
 10 Tharsis Sulphur and Co
 Stk. Union Pacific Land Gra
 Stk. Union Pacific Railway,

g, gold; l, lead; s, silver; sl, slate;
lead; t, tin; x, zinc.

lead; t, tin; s, sine.